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Machine Switching Equipment Notes

Volume II

ILLUSTRATIONS AND DRAWINGS

ENGINEERING DEPARTMENT

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Machine Switching Equipment Notes

Volume II

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The text and descriptive matter with which the sketches, illustrations and drawings in this volume are associated will be found in Volume I of Machine Switching Equipment Notes.

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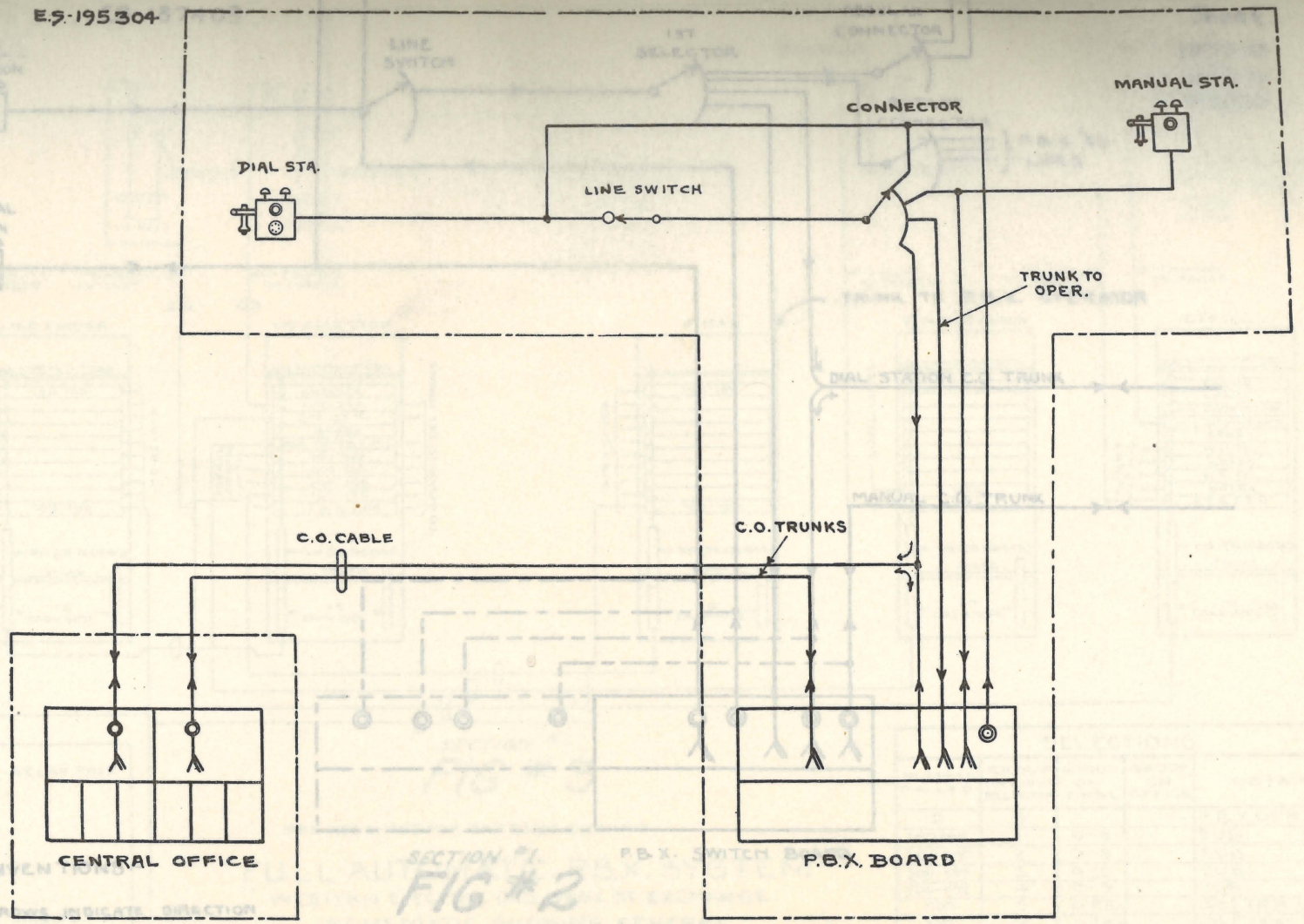
Section I

Various Mechanical Systems

KEY SHEET 187375

E.S. 195304



SECTION #1.
FIG #1

CONVENTIONS
- < ARROW INDICATES DIRECTION OF TRAFFIC
- Y INDICATES ANSWER JACK & LAMP
- ⊙ CIRCLES INDICATE MULTIPLE JACKS

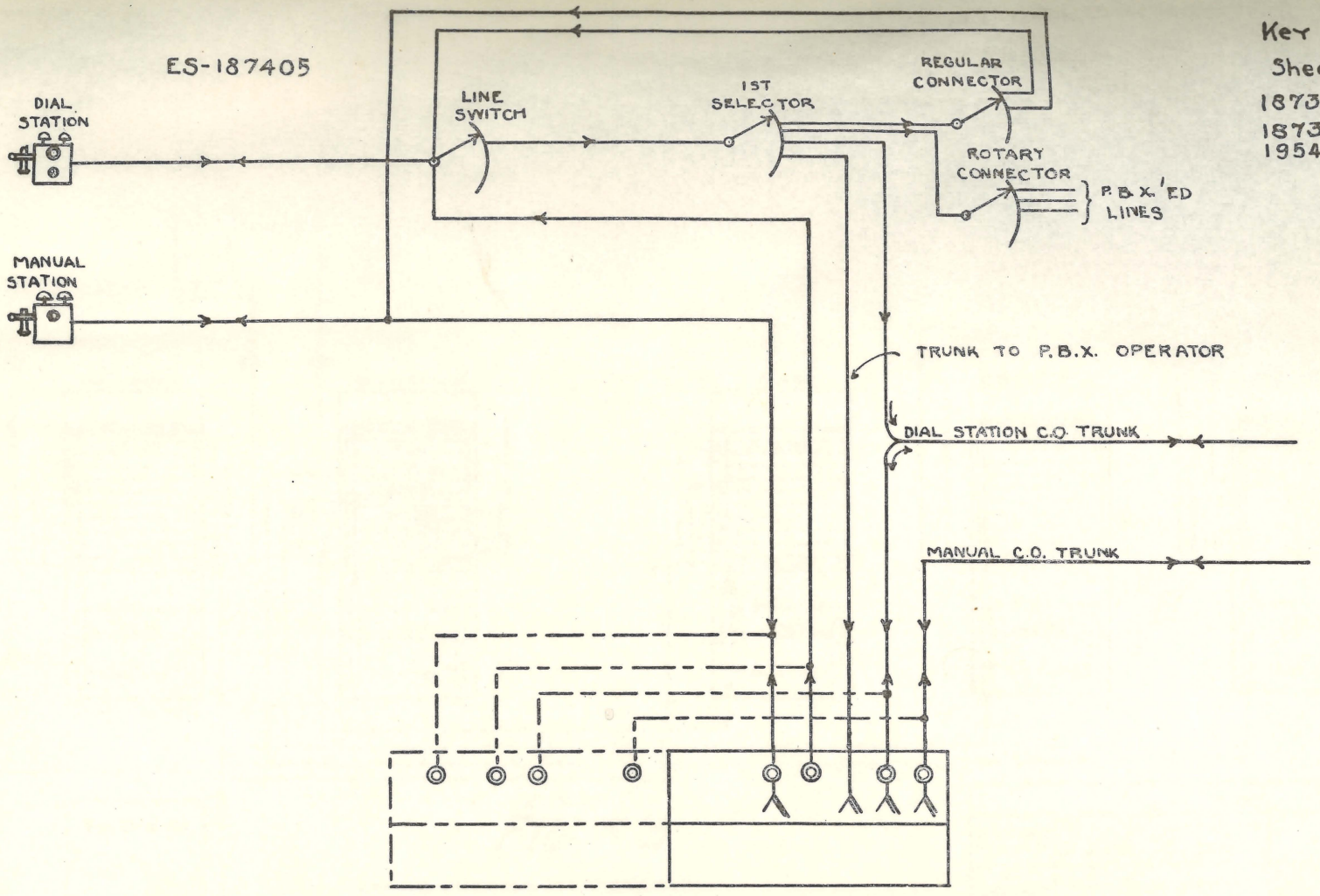
SEMI-MECHANICAL P.B.X.
CIRCUIT MAP
DIGIT SYSTEM
USING KEITH LINE SWITCH
AND A.E. CO'S. P.A.X.

ISSUED BY: W.H.G. 9/10/17. H.L.B.
Dec. 28, 1917. J.B. Williams, Jr.

E.S. 195304

ES-187405

Key Sheet
187373
187374
195480



SECTION #1.
FIG #2

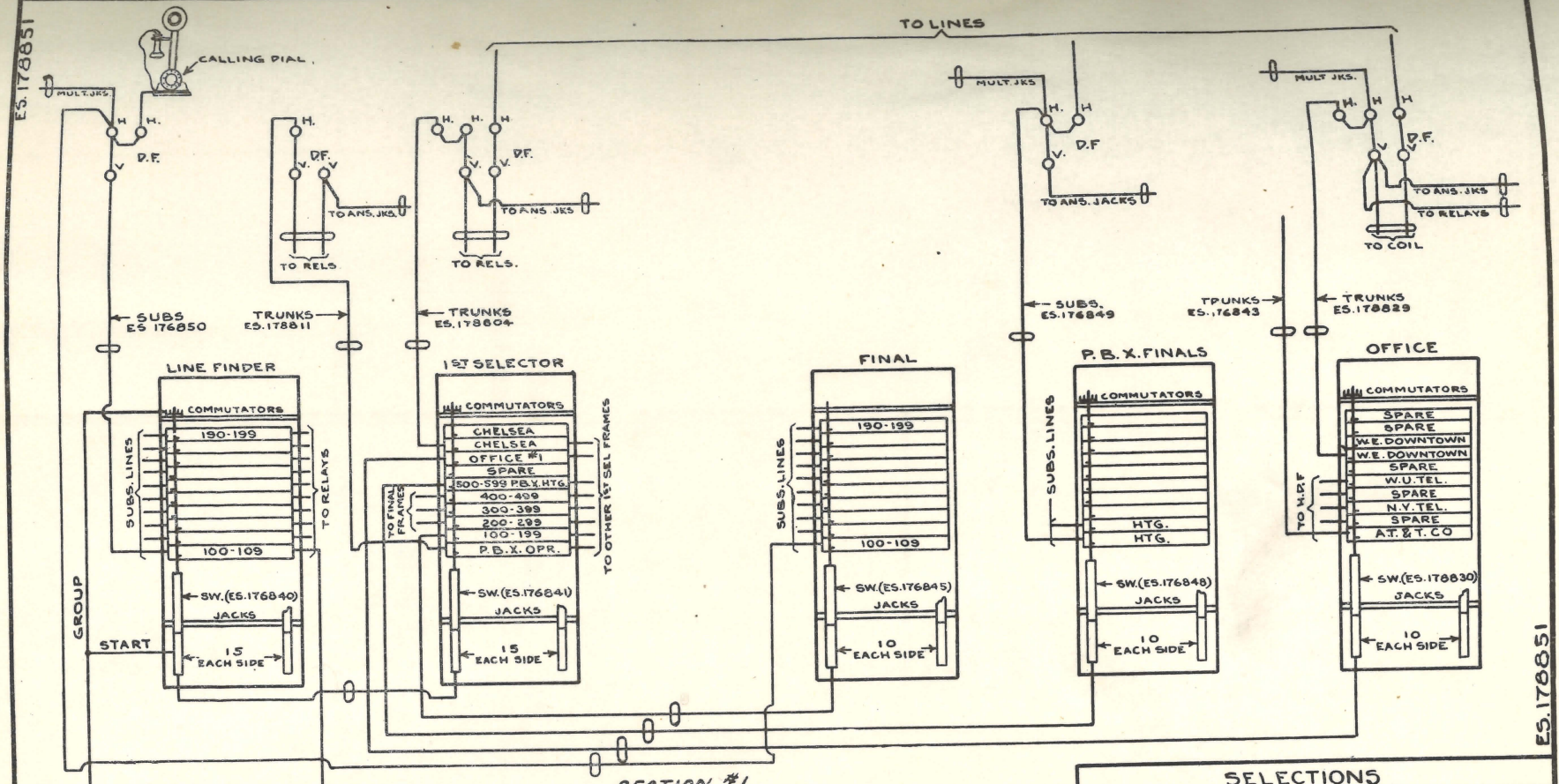
CONVENTIONS:-

1. → ARROWS INDICATE DIRECTION OF TRAFFIC.
2. >— INDICATES ANSWER JACK AND LAMP.
3. ⊛ CIRCLES INDICATE MULTIPLE JACK.
4. EQUIPMENT AND WIRING SHOWN DOTTED FOR MULTIPLE BOARD

SEMI-MECHANICAL P.B.X. 3 DIGIT SYSTEM
CIRCUIT MAP

ISSUED BY:- H.L.B. 1-25-18
Jan. 25, 1918. J.B. Williams, Jr.

ES-187405



SECTION #1.

FIG #3

SEE KEY SHEET FOR BATTERY GROUND

FULL AUTOMATIC P.B.X. SYSTEM

WESTERN ELECTRIC CO.'S WEST ST. EXCHANGE

SCHEMATIC SHOWING GENERAL ARRANGEMENT OF FRAME EQUIPMENT AND ROUTING OF CALLS

CHECKED BY: E.J.B., H.L.B. 2/4/16

ISSUE: 2 3/17/16 H.L.B.

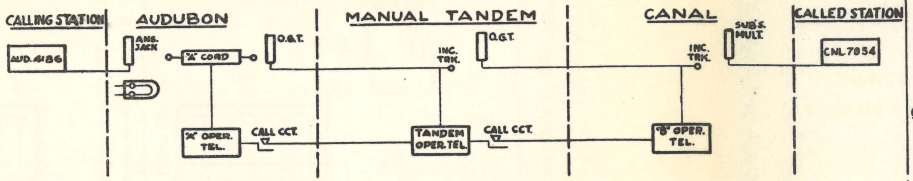
* 1ST SEL. SW. HUNTS IN 9 IF ALL TRUNKS IN 8 ARE BUSY
* OFFICE SEL. SW " 7 " " " " 6 " "

SELECTIONS

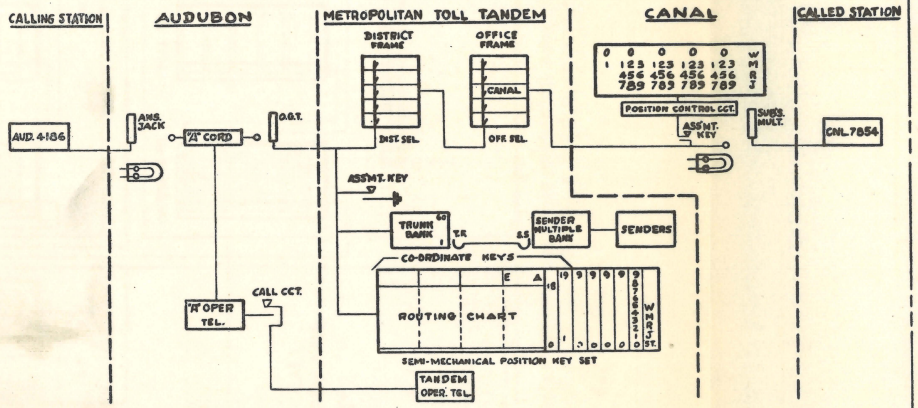
NUMBER DIALLED	GROUP ON FIRST SELECTOR	GROUP ON FINAL	GROUP ON OFFICE	OBTAINS
0	0			P.B.X. OPR.
100-199	1	0-9		SUB.
200-299	2	0-9		SUB.
300-399	3	0-9		SUB.
400-499	4	0-9		SUB
500	5	0-P.B.X.		IDLE TRK. OF GRP.
510	5	1-P.B.X.		IDLE TRK. OF GRP.
70	7		0	A.T. & T. P.B.X. OPR.
72	7		2	N.Y.T. P.B.X. OPR.
74	7		4	W.U.T. P.B.X. OPR.
76	7		6 OR 7 *	W.E. Co. W.U. BLDG. P.B.X.
8	8 OR 9 *			CHELSEA

ES.178851

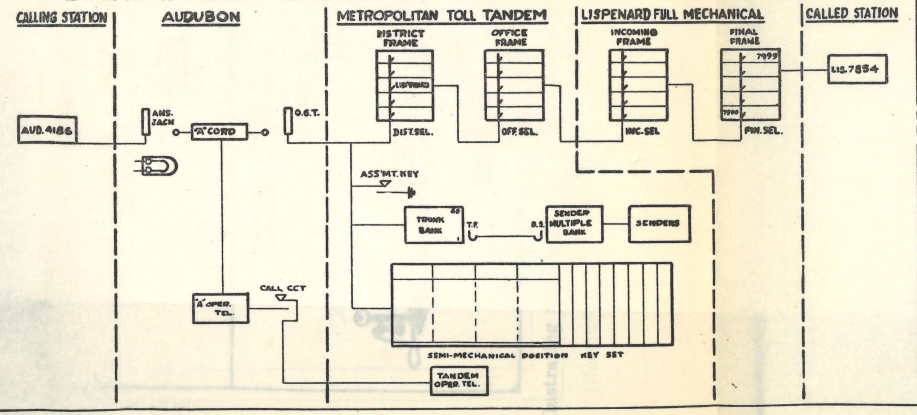
SKETCH A
LOCAL TANDEM OPERATION - ALL MANUAL STAGE



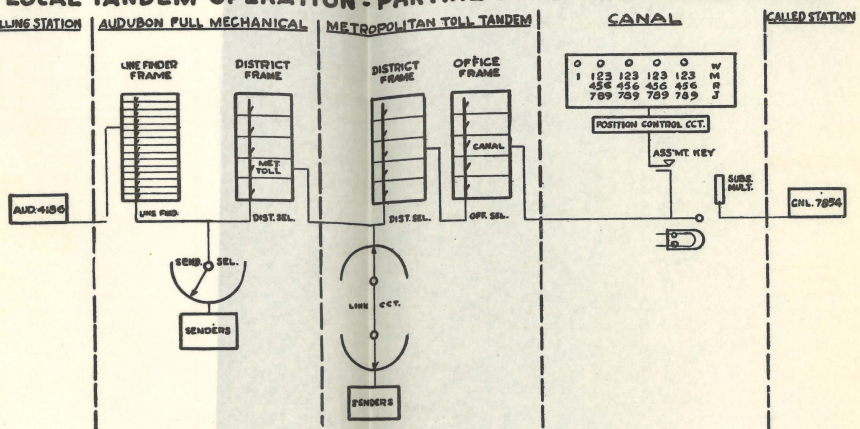
SKETCH B
LOCAL TANDEM OPERATION - INTERMEDIATE STAGE



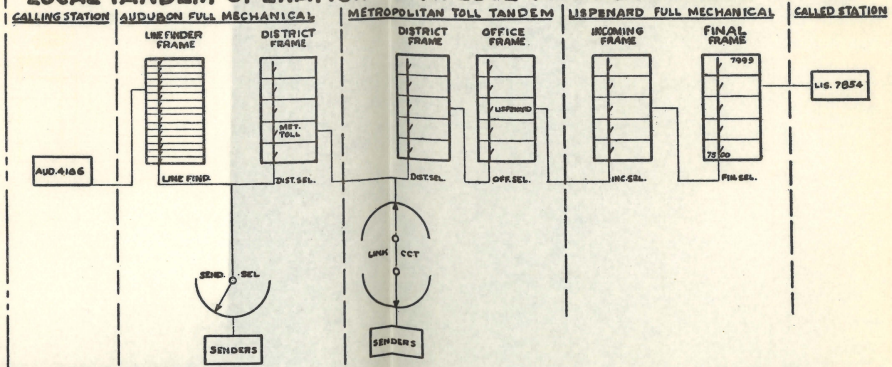
SKETCH C
LOCAL TANDEM OPERATION - PARTIAL FULL MECHANICAL STAGE



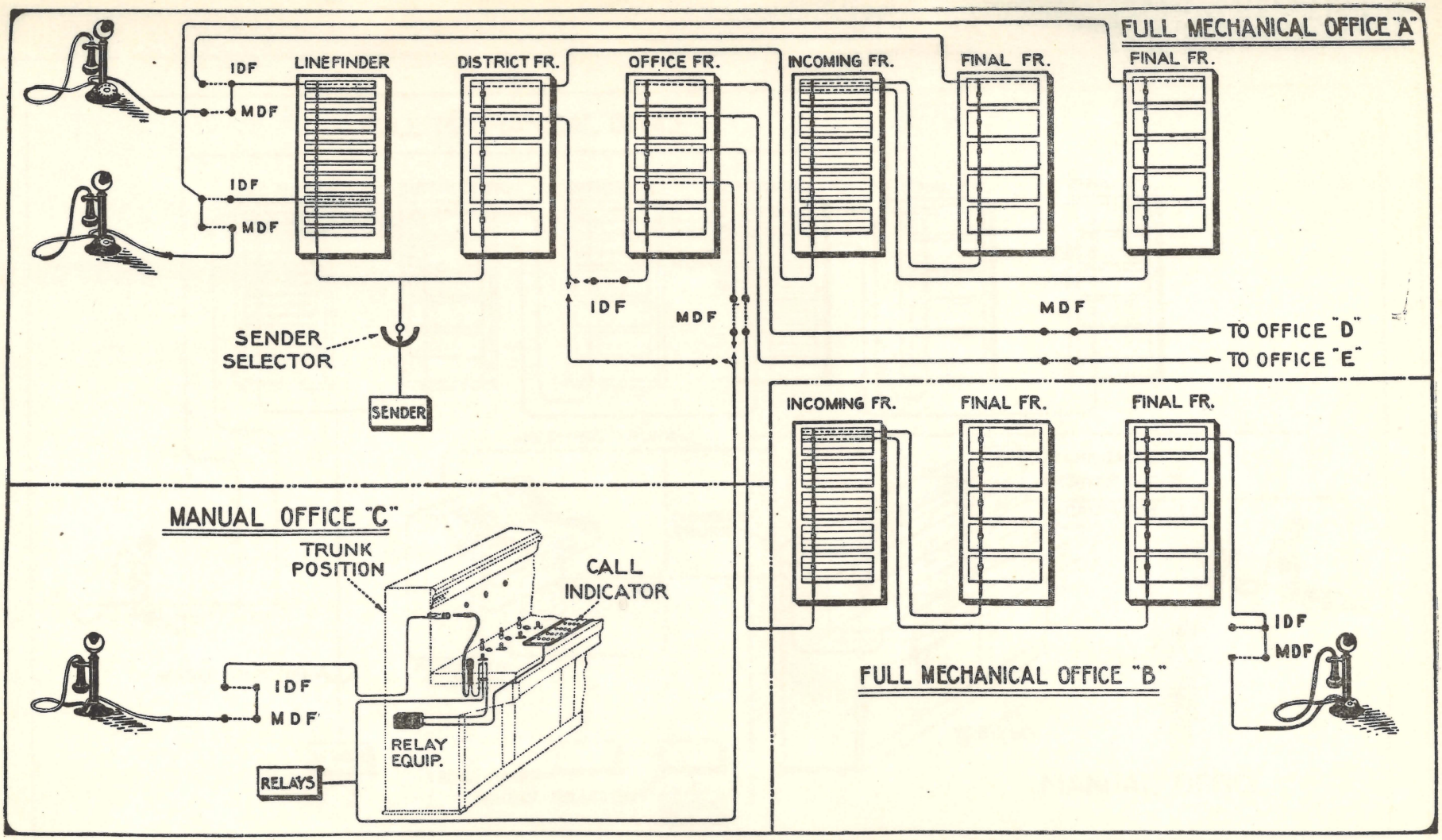
SKETCH D
LOCAL TANDEM OPERATION - PARTIAL FULL MECHANICAL STAGE



SKETCH E
LOCAL TANDEM OPERATION - COMPLETE FULL MECHANICAL STAGE

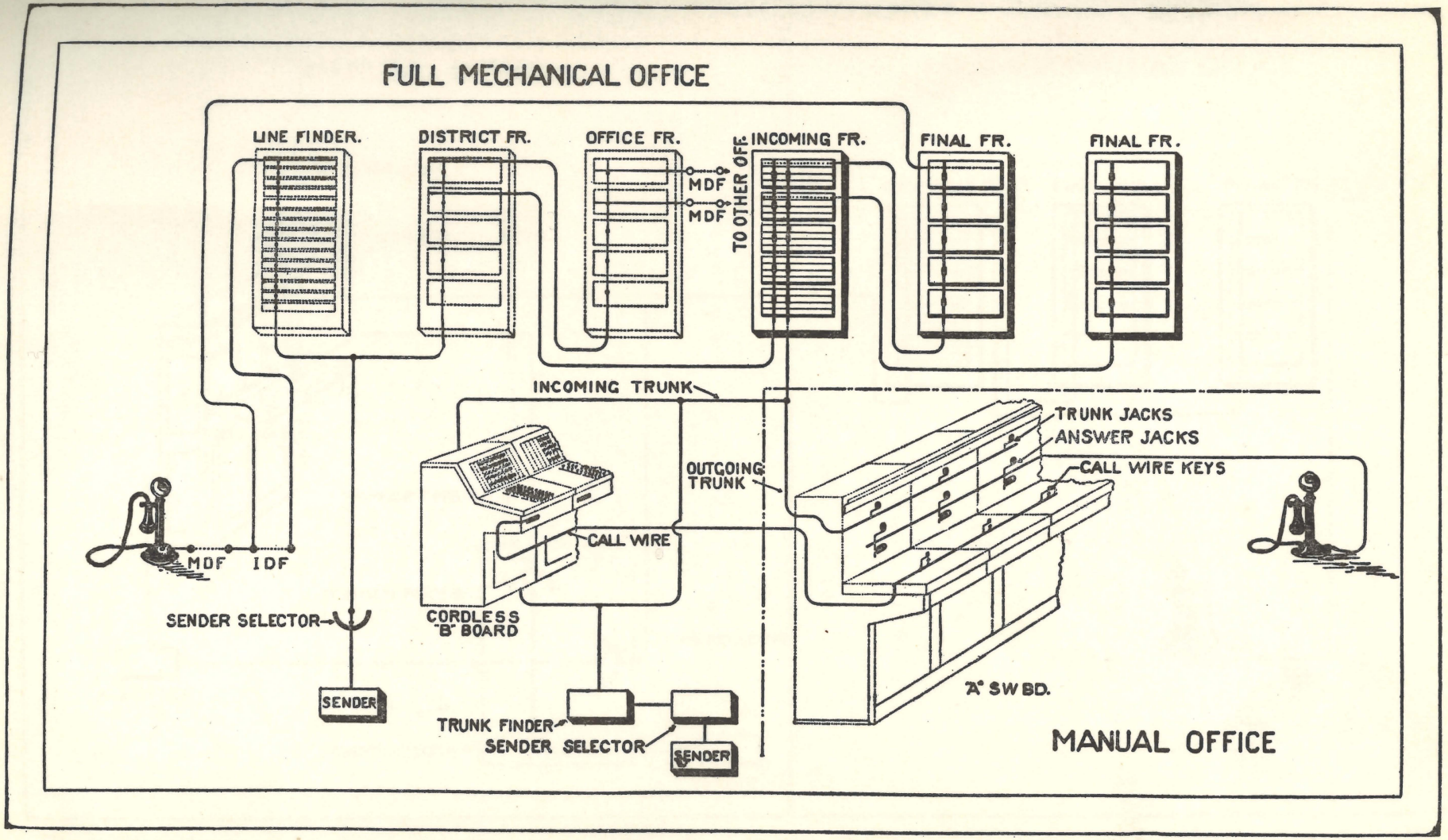


SECTION #1.
FIG. #4



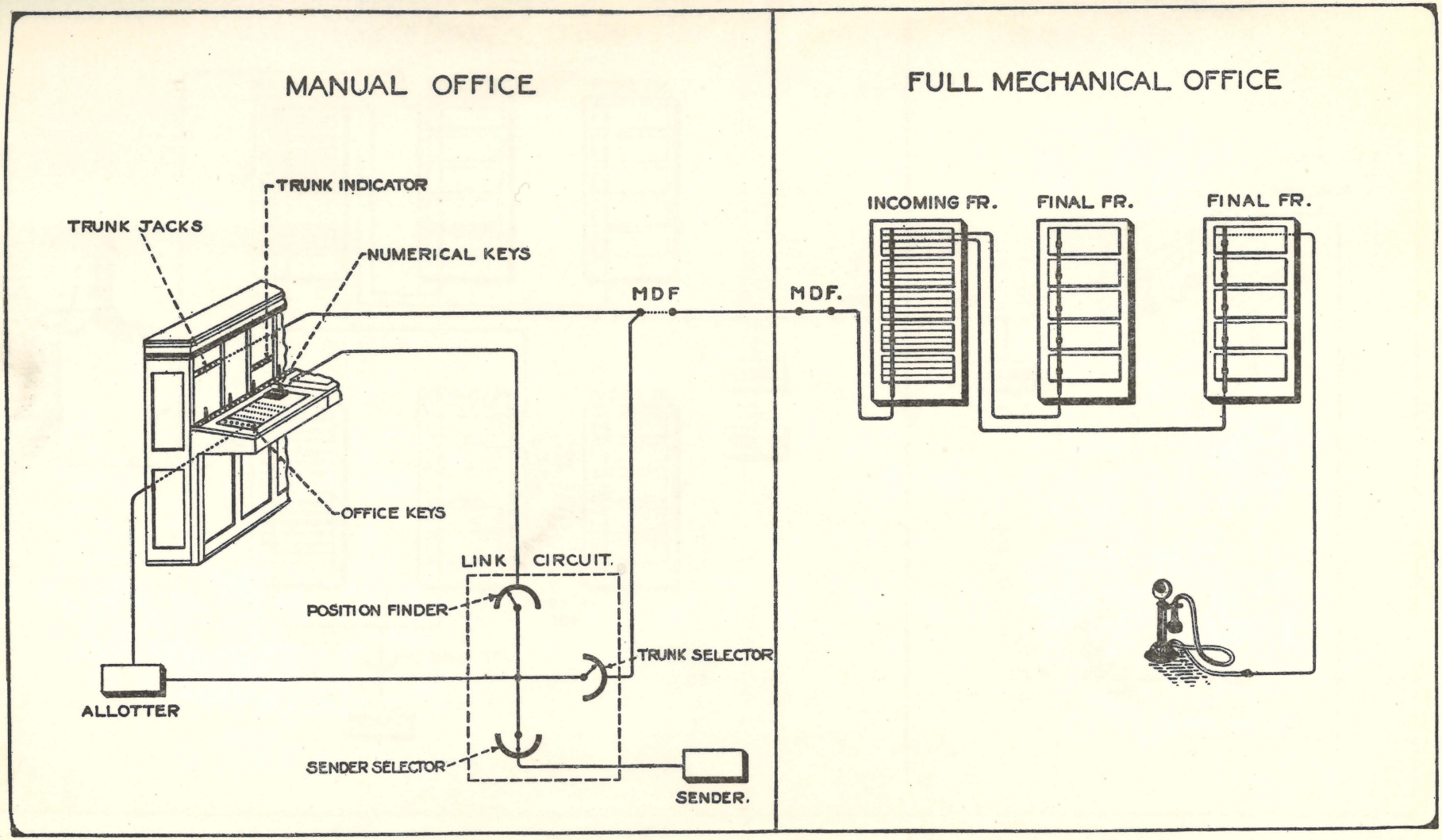
Illustrating the progress of a call through a full-mechanical office from one mechanical subscriber to another in the same office, also a call from a full-mechanical subscriber in one office to a manual subscriber in another office.

SEC. 1. Fig. 5.



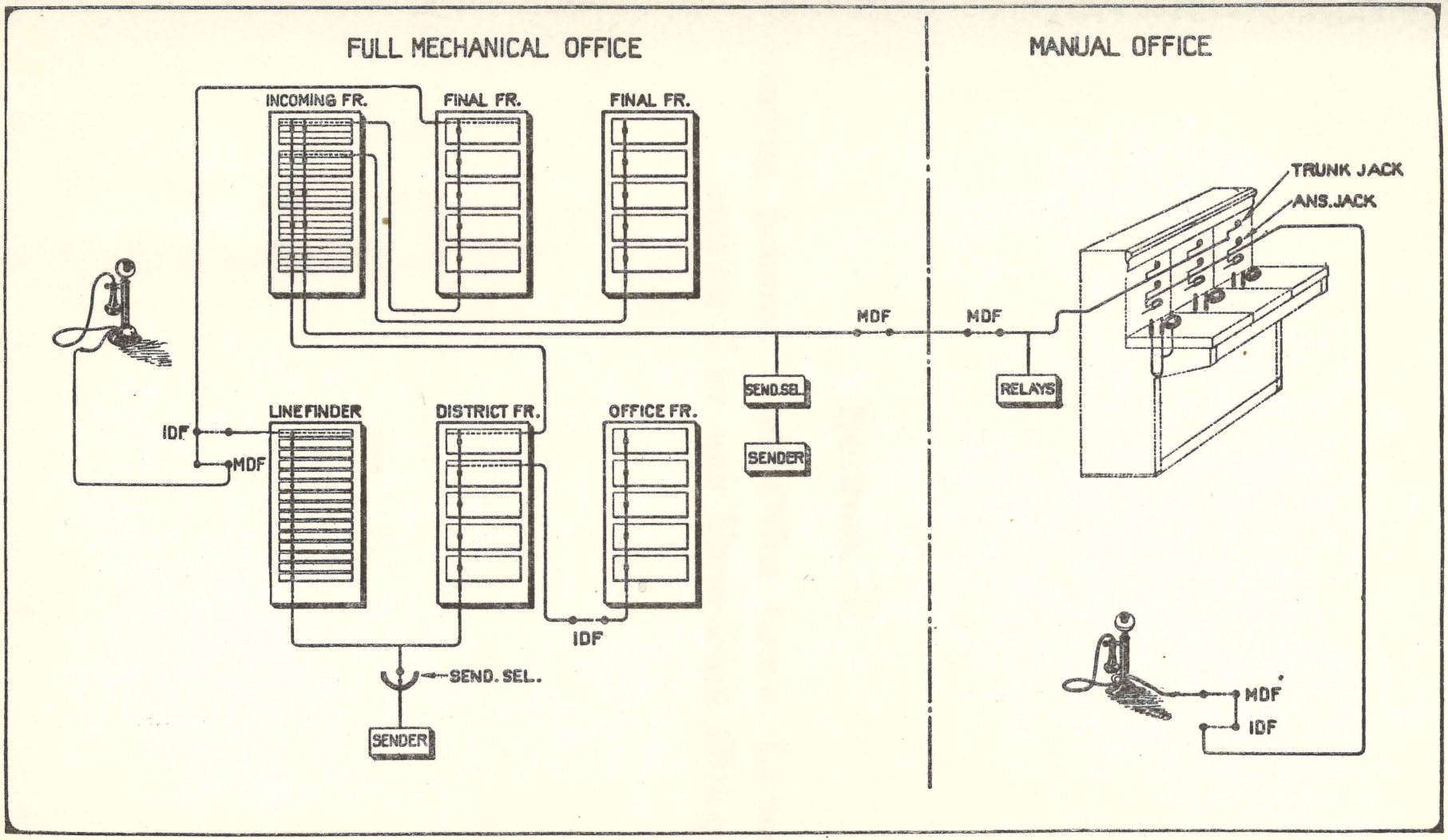
Illustrating the progress of a call from a manual subscriber in an office to a full-mechanical subscriber in another office. Cordless "B" switchboard in full-mechanical office.

SEC. I. Fig. 6.



Illustrating the progress of a call from a manual subscriber in one office to a full-mechanical subscriber in another office. Manual office equipped with numerical keys and indicator.

SEC. I. **Fig. 7.**

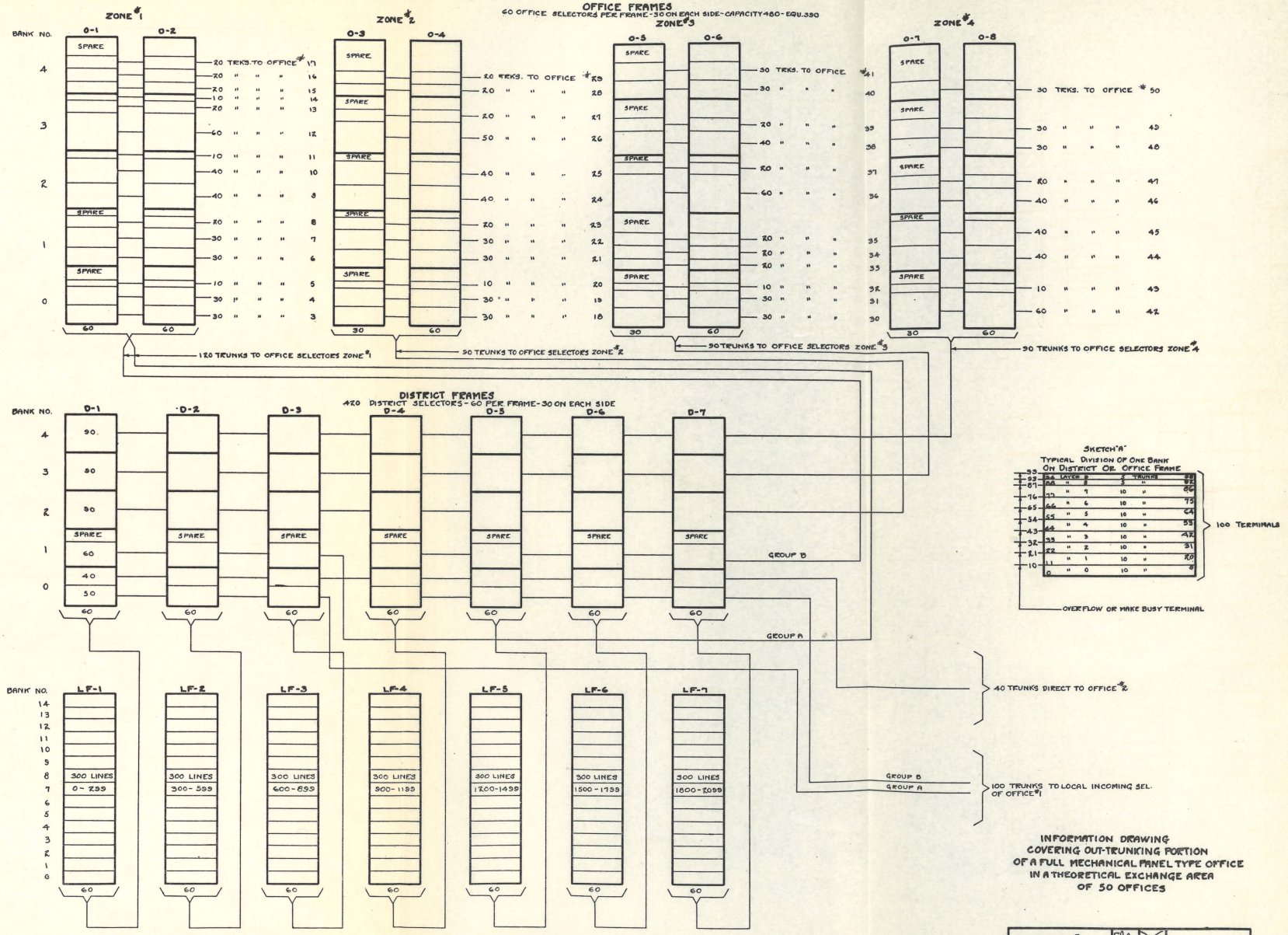


Illustrating the progress of a call from a manual subscriber in one office to a full-mechanical subscriber in another office. Manual switchboard equipped with dials.

SEC. 1 Fig. 8.

Section II

Trunking Scheme—Multi-Office Areas—Exchange Lay-outs for Two and Three-Digit Offices



INFORMATION DRAWING
COVERING OUT-TRUNKING PORTION
OF A FULL MECHANICAL PANEL TYPE OFFICE
IN A THEORETICAL EXCHANGE AREA
OF 50 OFFICES

APPROVED: 12/27/20	EJS 12/20 / HSS.	DRAWN BY J.L.F.
		CHECKED BY H.S.
WESTERN ELECTRIC CO., INC., N.Y.		ENG. DEPT.

AMERICAN TELEPHONE & TELEGRAPH CO.
ENGINEERING DEPARTMENT

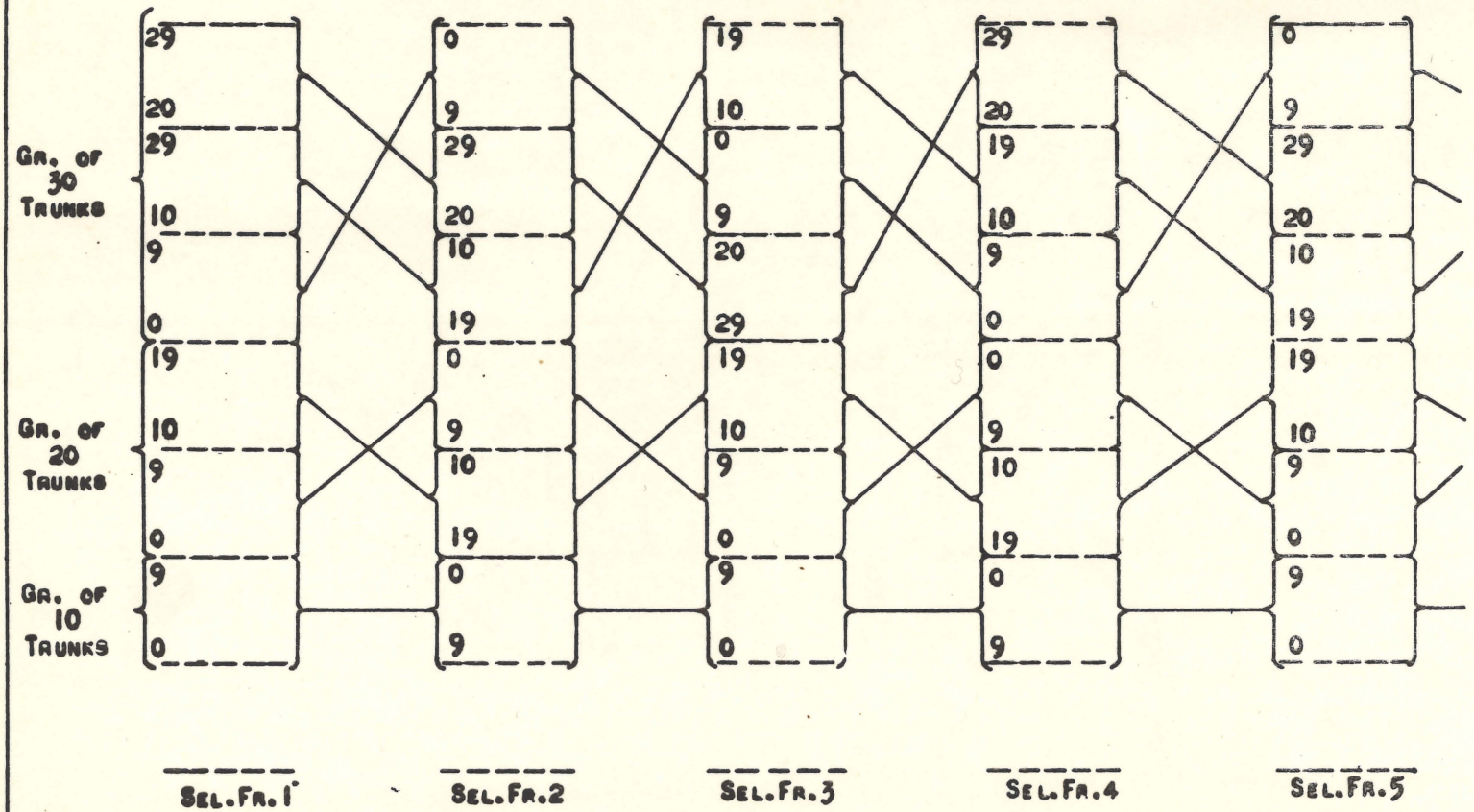
706 - 127
PROVISIONAL

ENGINEER
DRAFTSMAN
CHECKED BY MFR

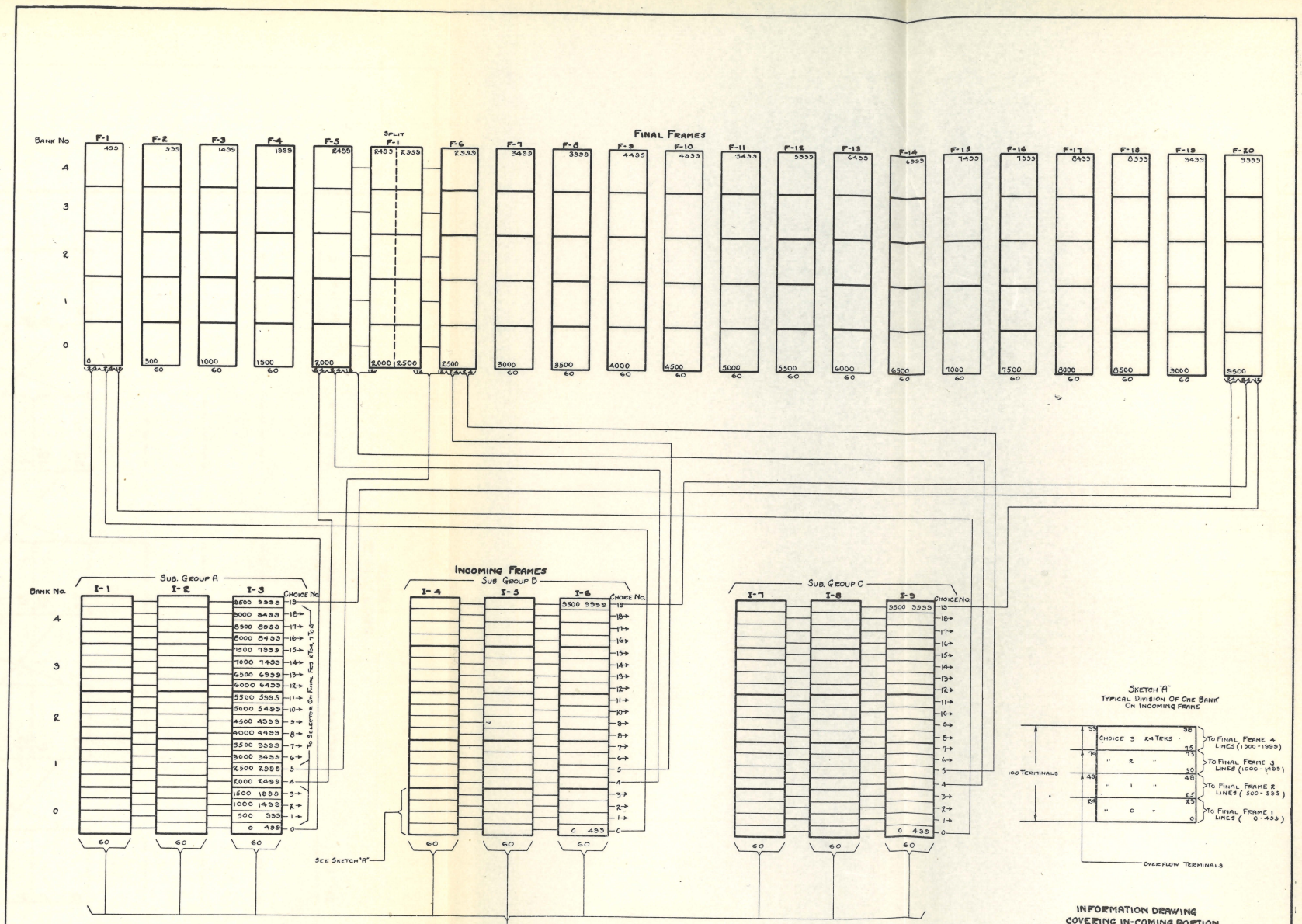
Log No. P-66,9-1-18

ISSUE 1.

METHOD OF SLIPPING O.G.T. MULTIPLE ON DISTRICT AND OFFICE SELECTOR FRAMES



SECTION II
FIG. #2



TRUNKS TERMINATING AS INCOMING SELECTORS INCOMING FROM 50 FULL MECHANICAL OR MANUAL OFFICES EITHER ON A FULL MECHANICAL, CORDLESS OR KEY INDICATOR BASIS

SECTION II
FIG #3

INFORMATION DRAWING
COVERING IN-COMING PORTION
OF A FULL MECHANICAL PANEL TYPE OFFICE
IN A THEORETICAL EXCHANGE AREA
OF 50 OFFICES

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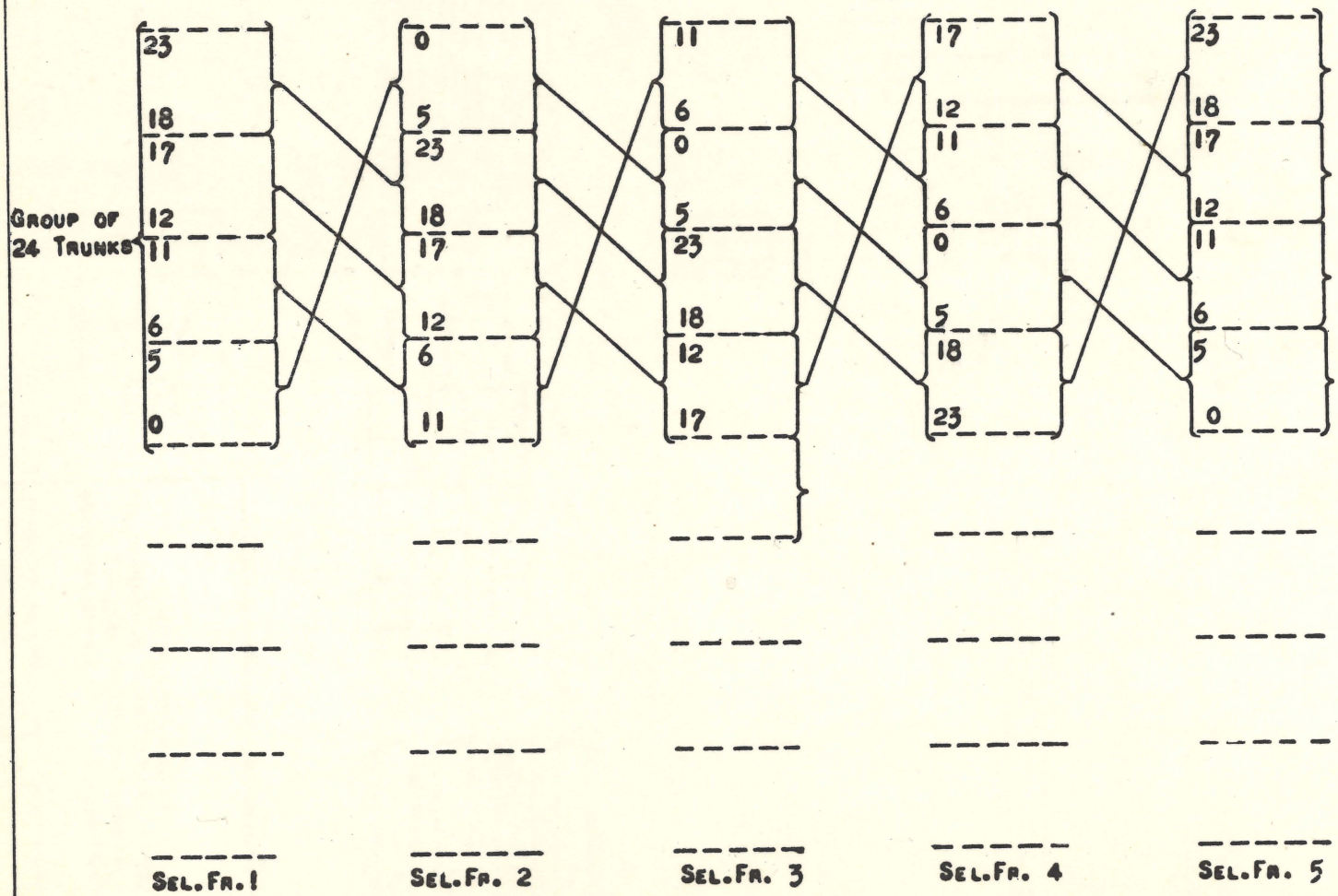
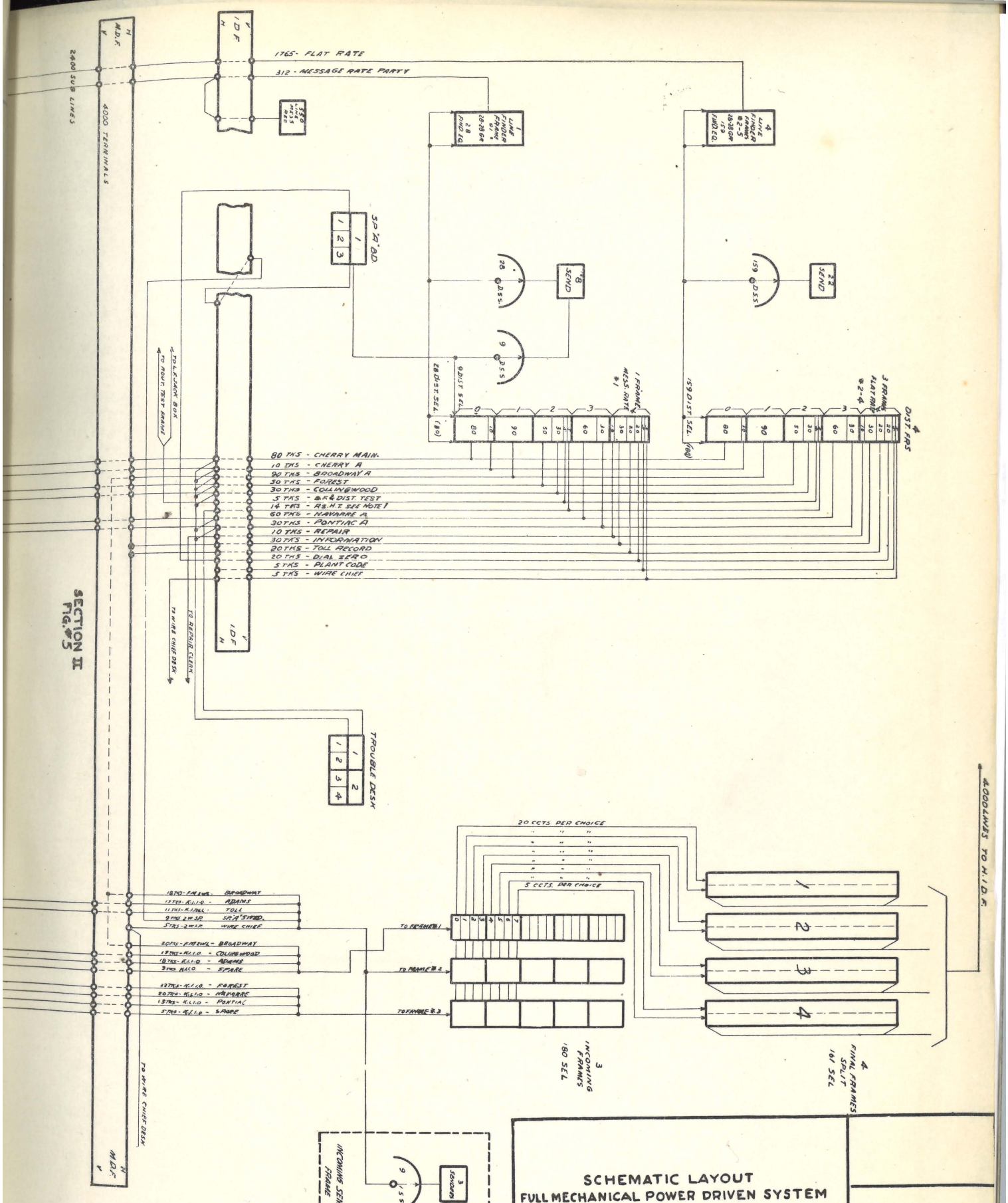
ISSUE 1.

MULTIPLE ARRANGEMENT OF INCOMING SELECTOR FRAMES



SECTION II
FIG. #4



SCHEMATIC LAYOUT
FULL MECHANICAL POWER DRIVEN SYSTEM
CENTRAL UNION TELEPHONE CO.
BROADWAY OFFICE, TOLEDO, OHIO.

APPROVED

DRAWN BY P.L.D.

CHECKED BY W.F.

WESTERN ELECTRIC CO., INC N.Y. ENG. DEPT.

ES-225183

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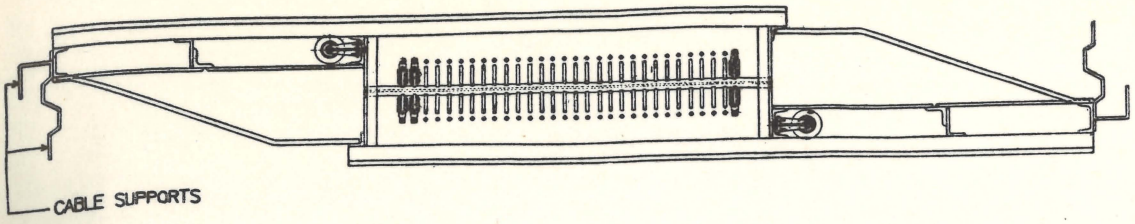
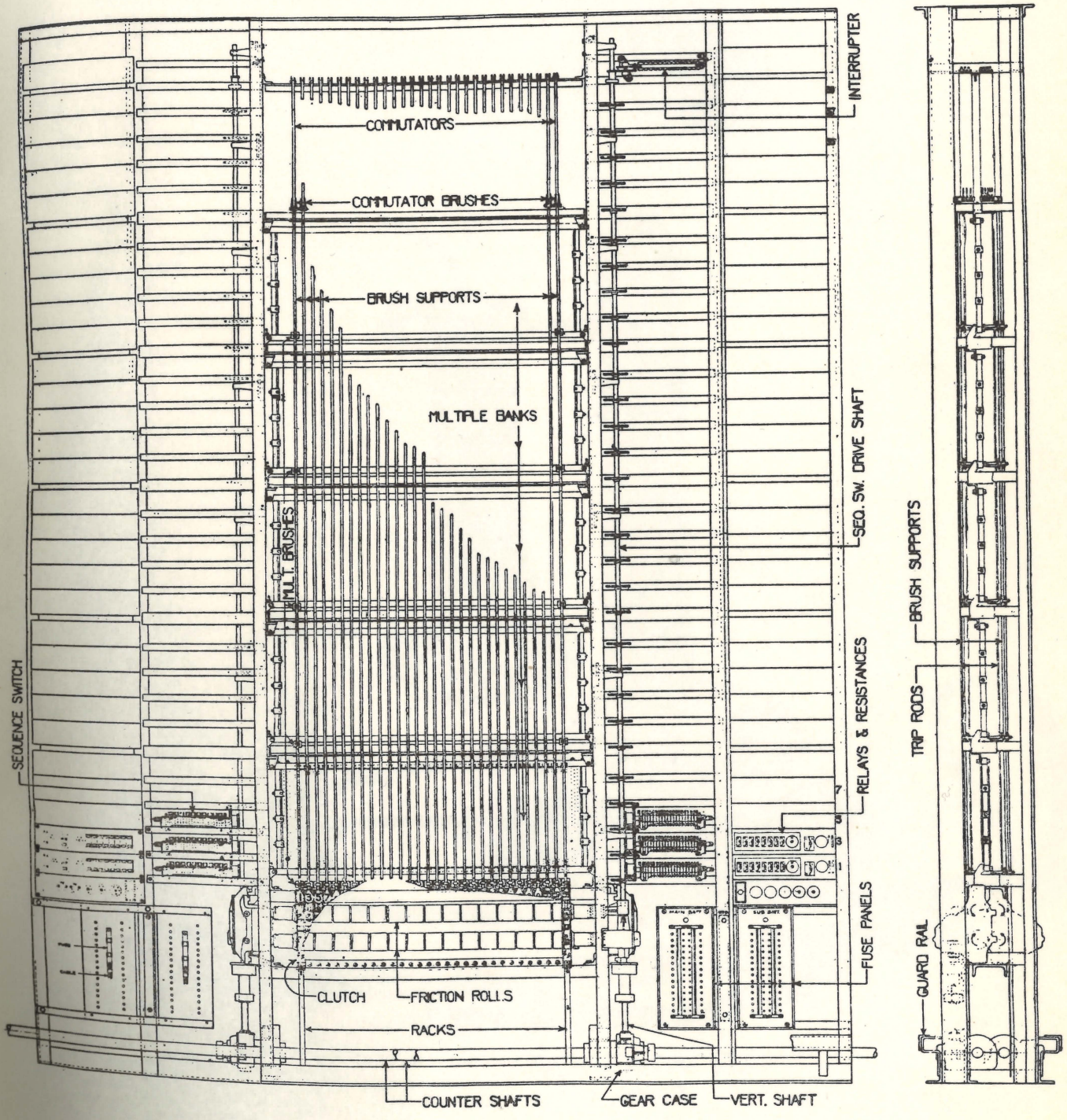
T-418284





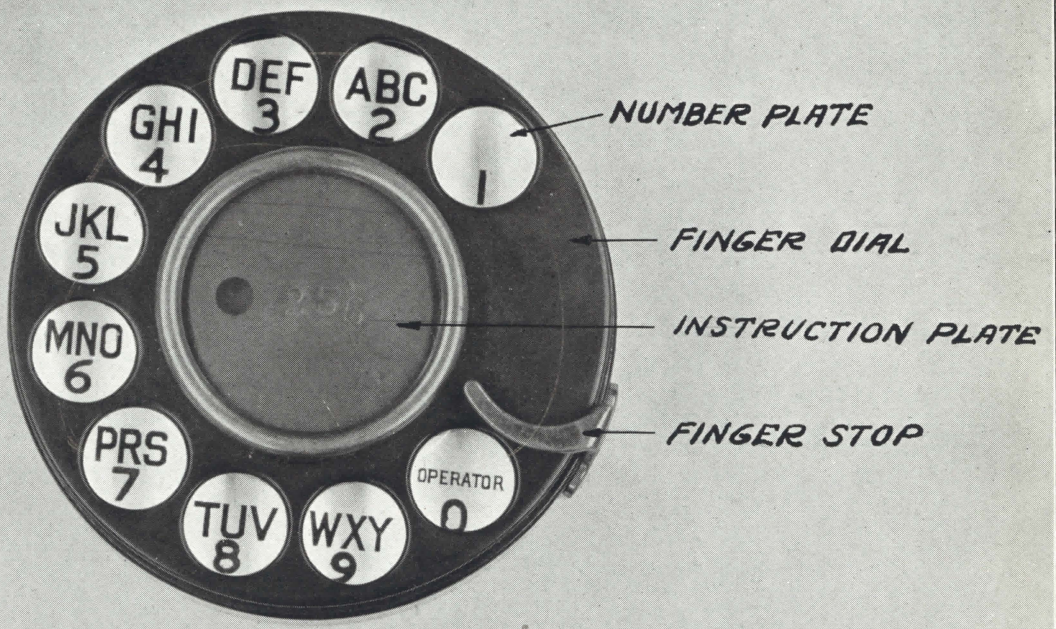
7636

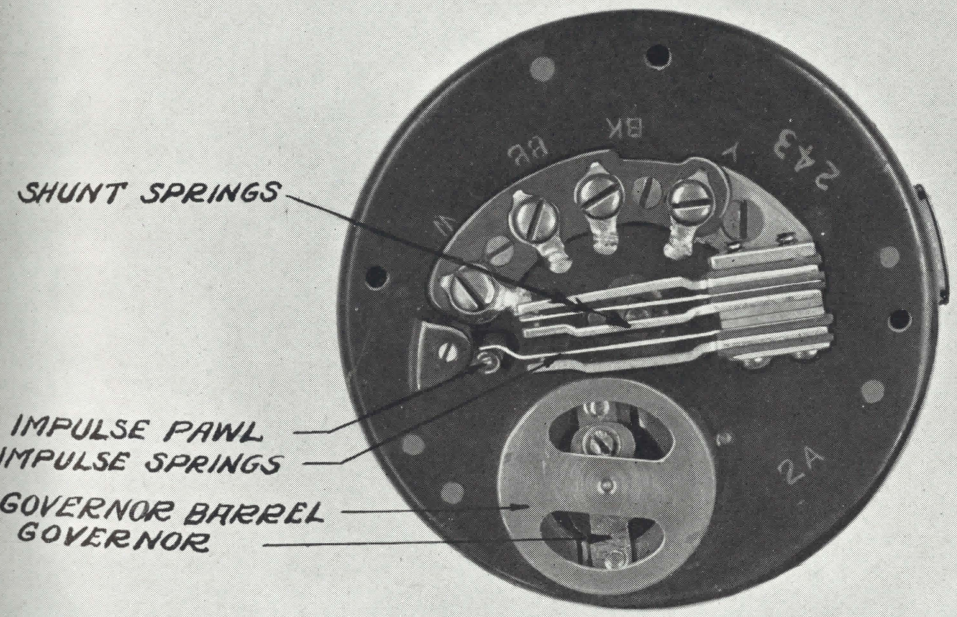
TYPICAL SELECTOR FRAME

T-418284

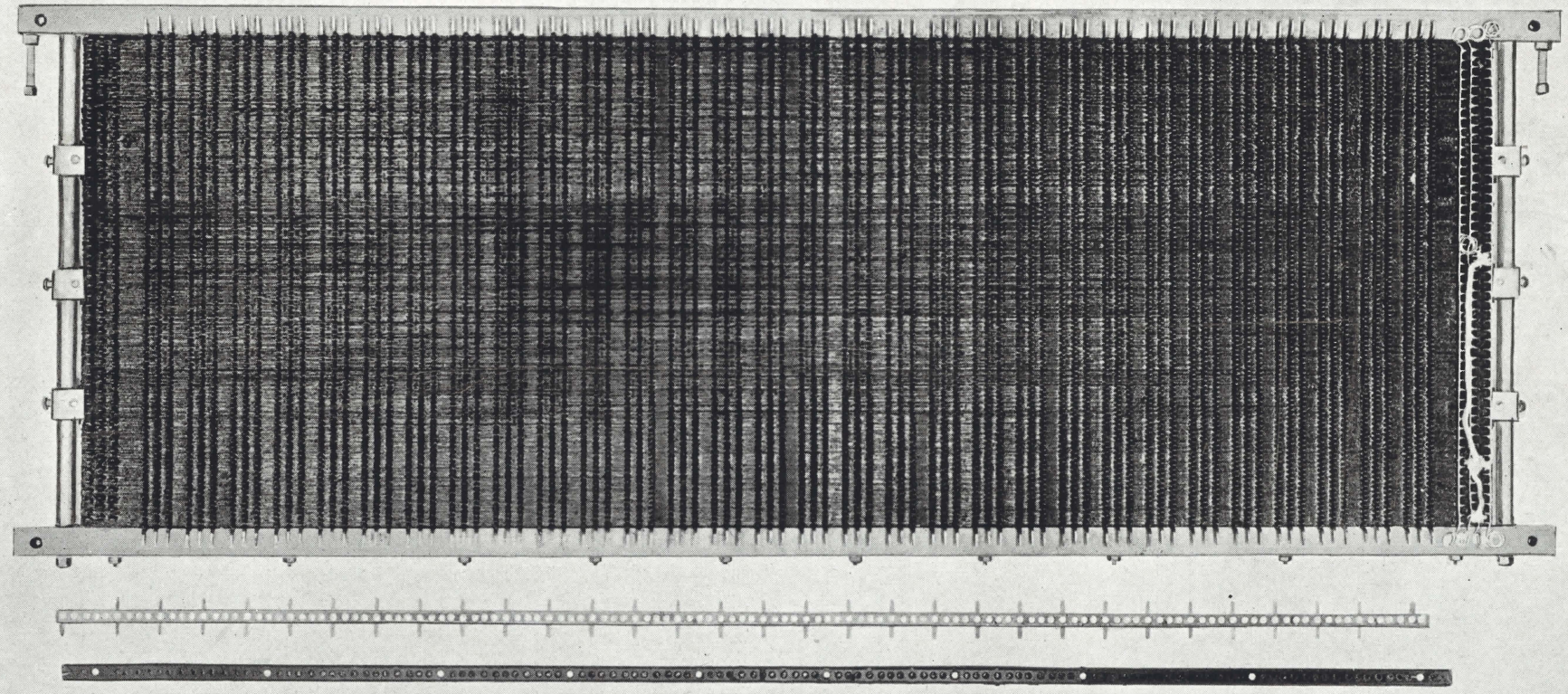
SECTION III
FIG. 1.

SECTION III
FIG 2





DIAL
SECTION III
FIG 3

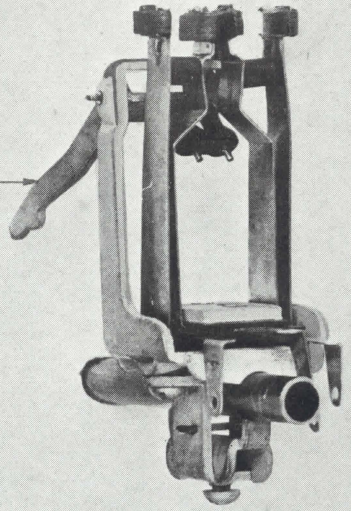


MULTIPLE BANK

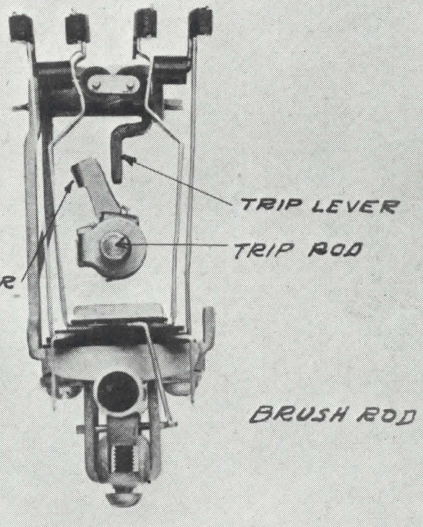
SECTION III

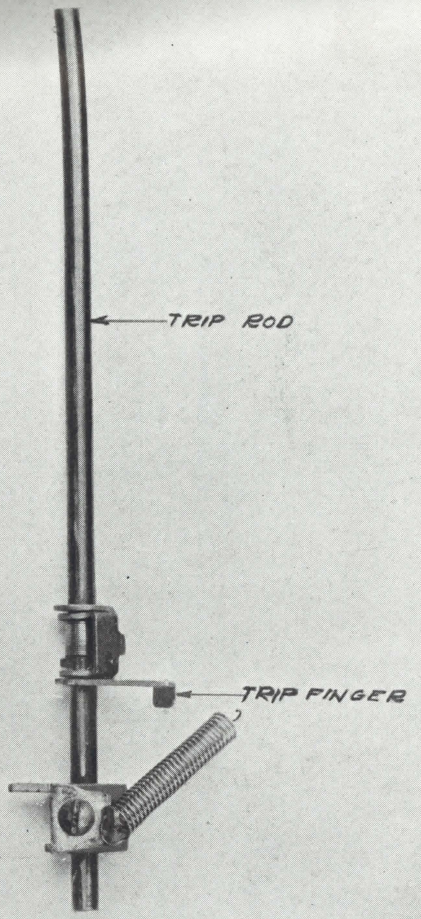
FIG. 4.

TRIPPED POSITION

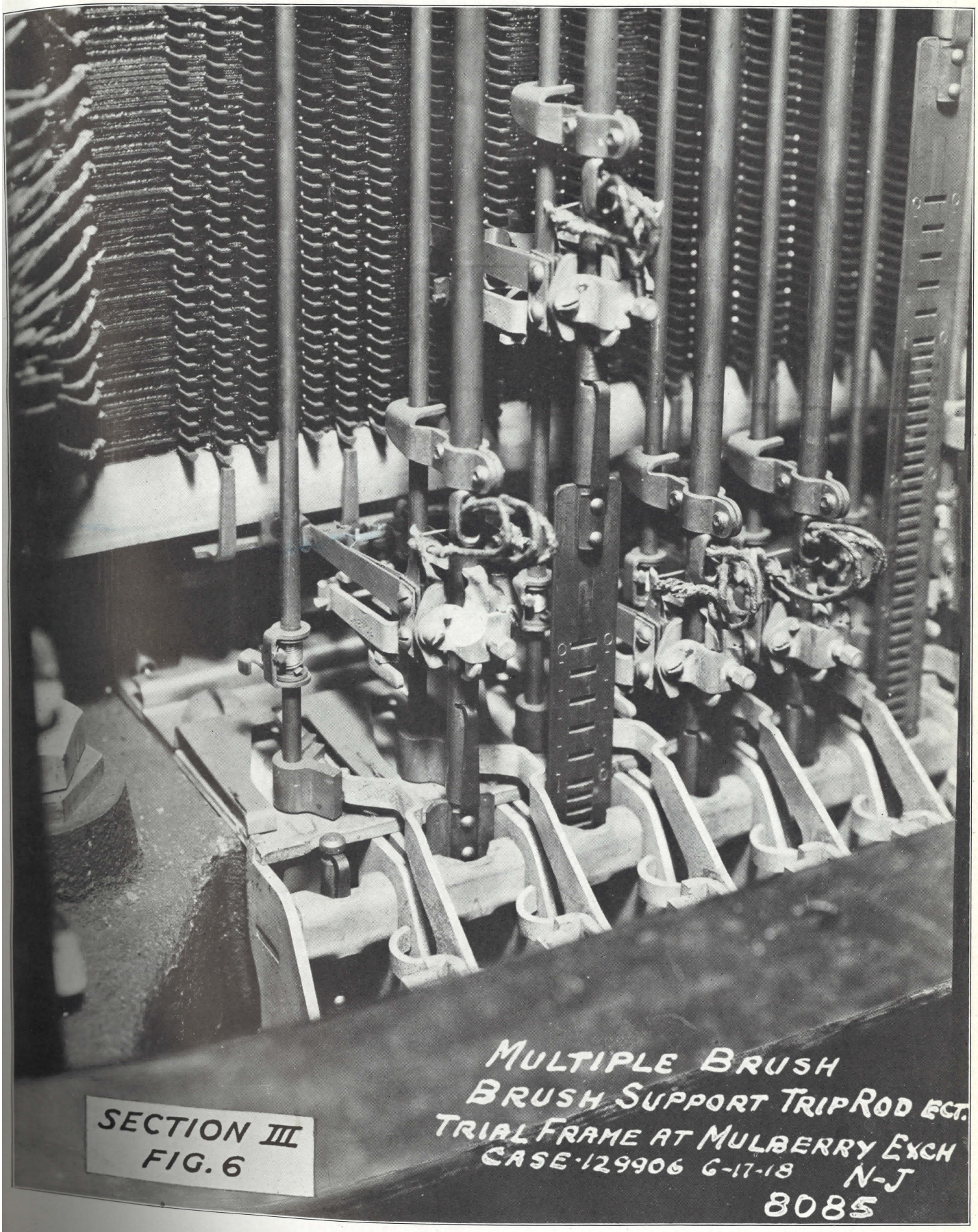


NORMAL POSITION

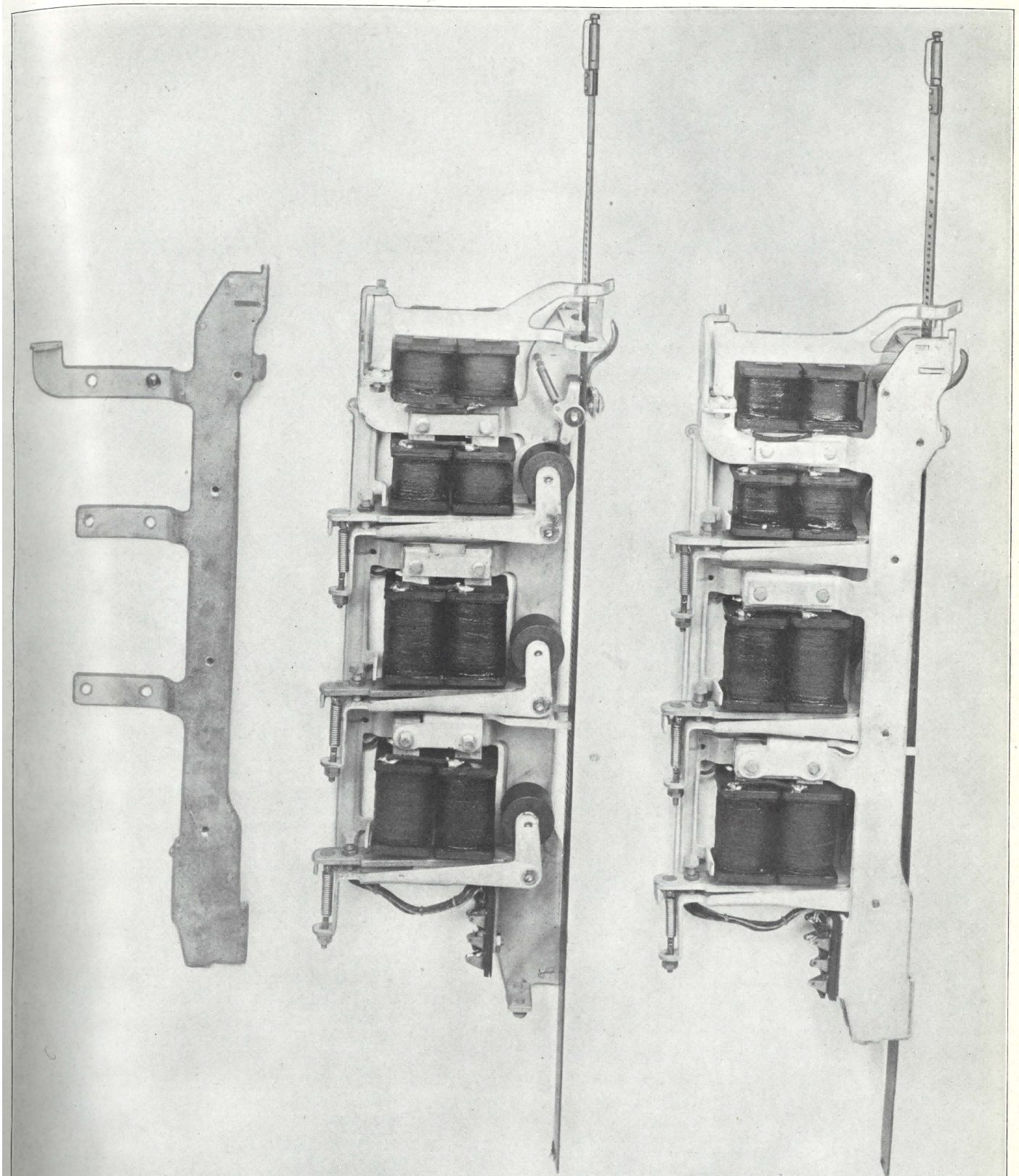




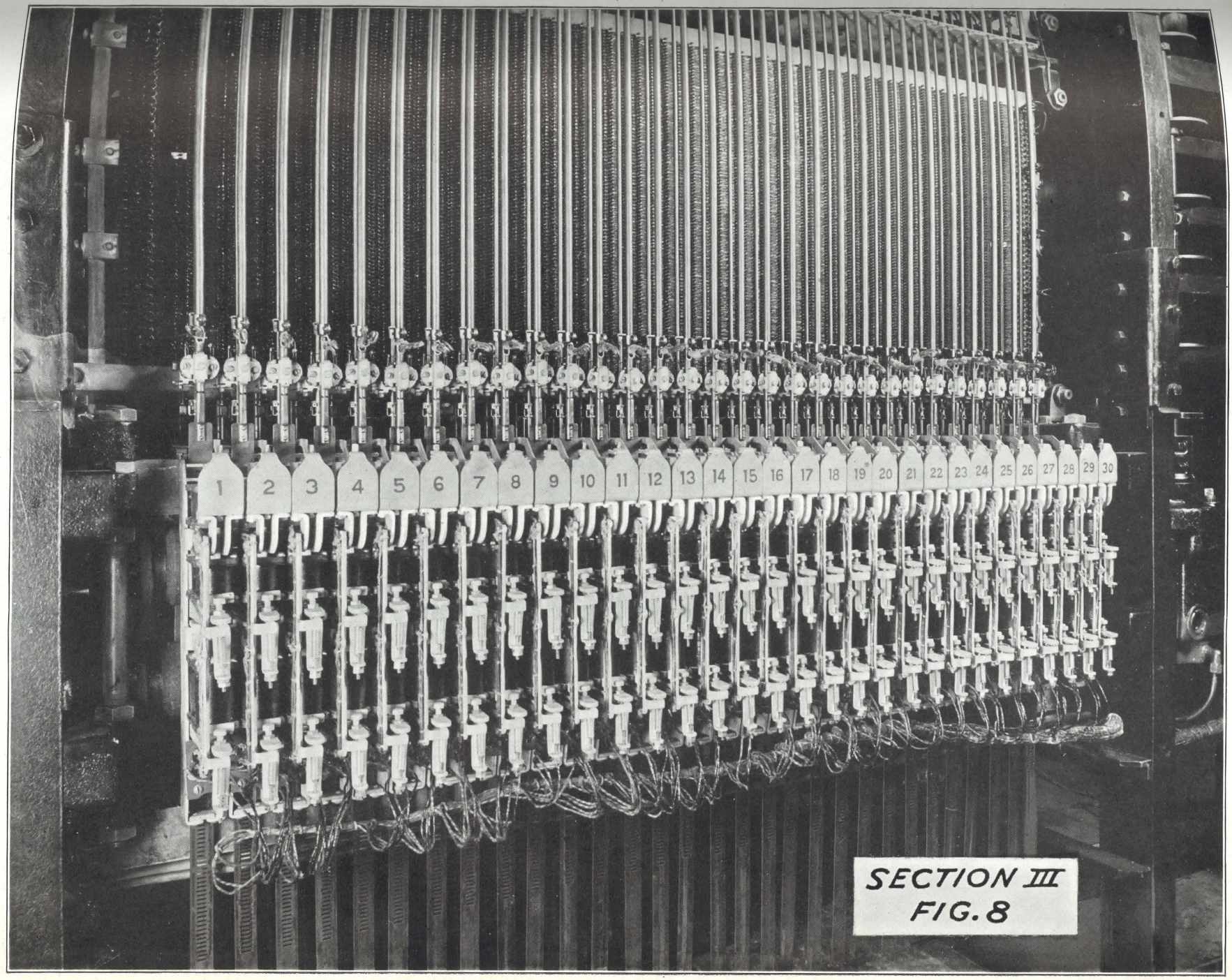
MULTIPLE BRUSH
SECTION III
FIG 5



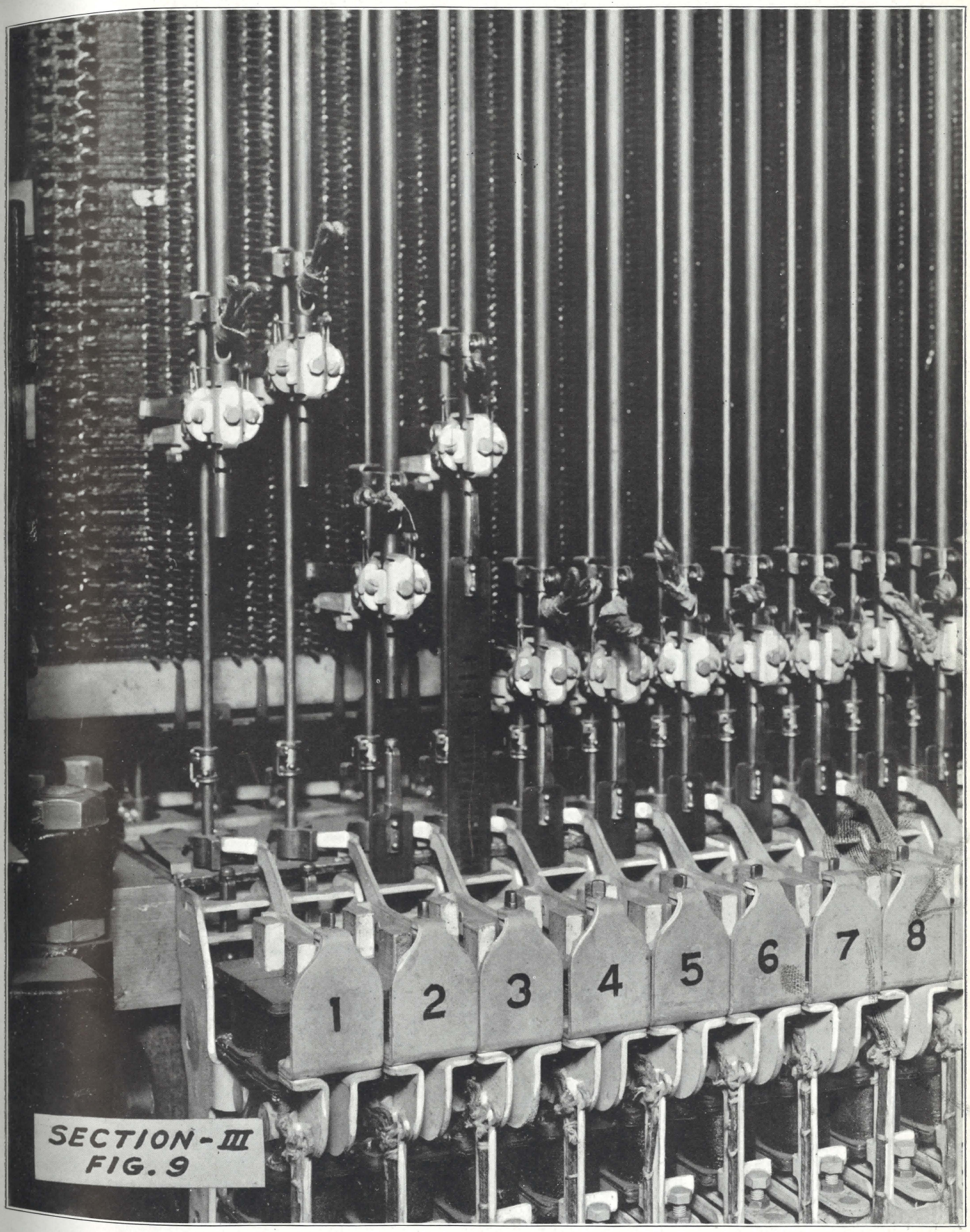
SECTION III
FIG. 6



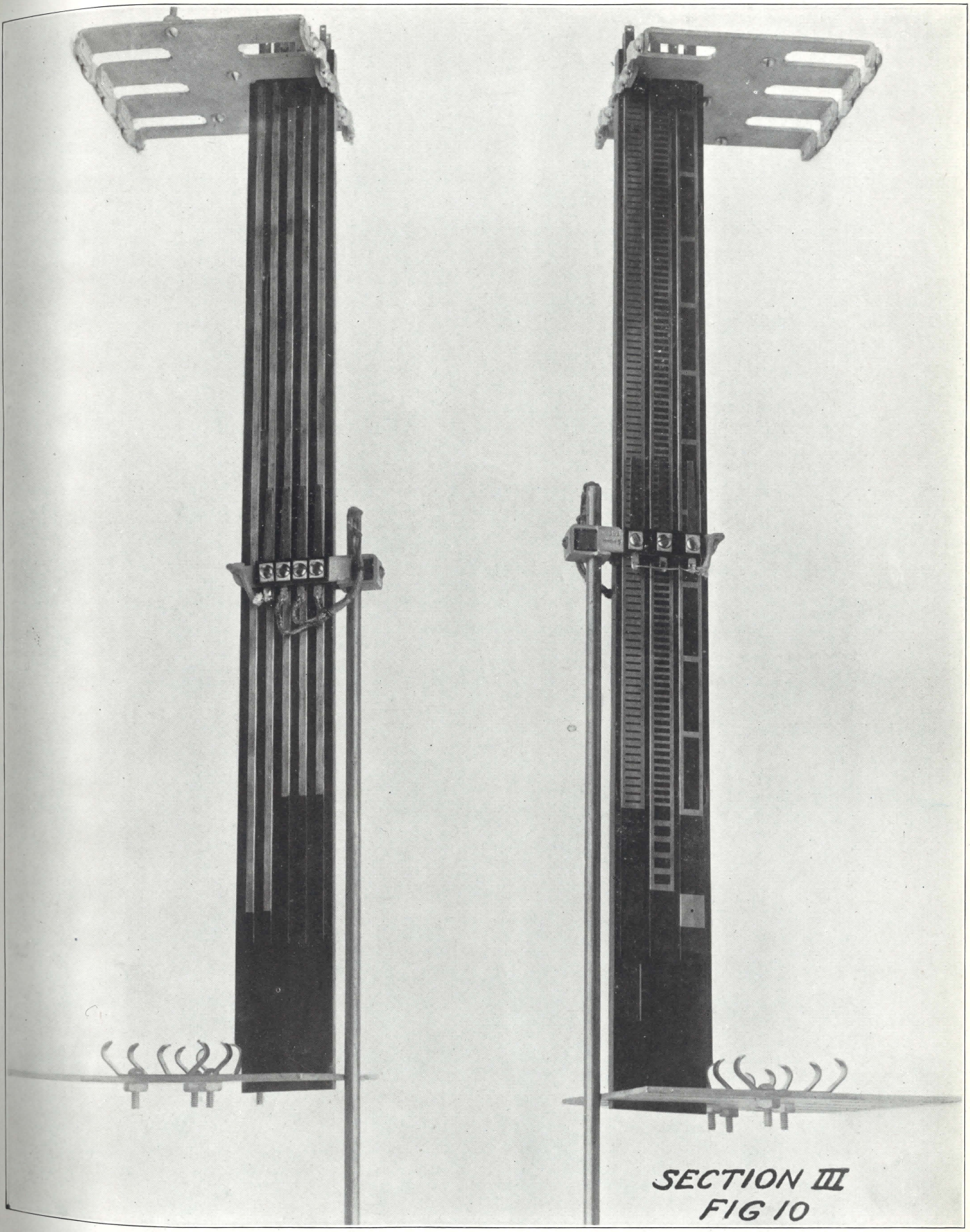
SECTION III
FIG 7



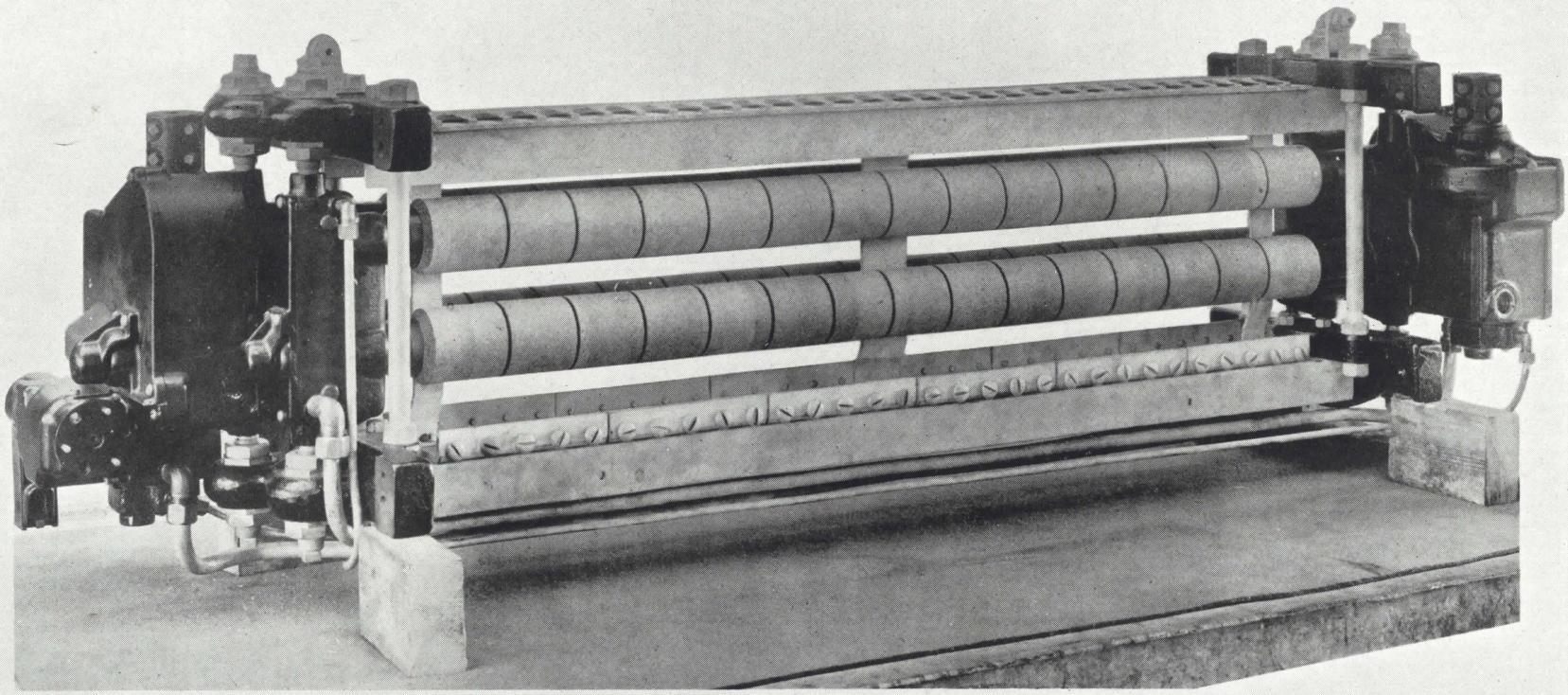
SECTION III
FIG. 8



SECTION - III
FIG. 9



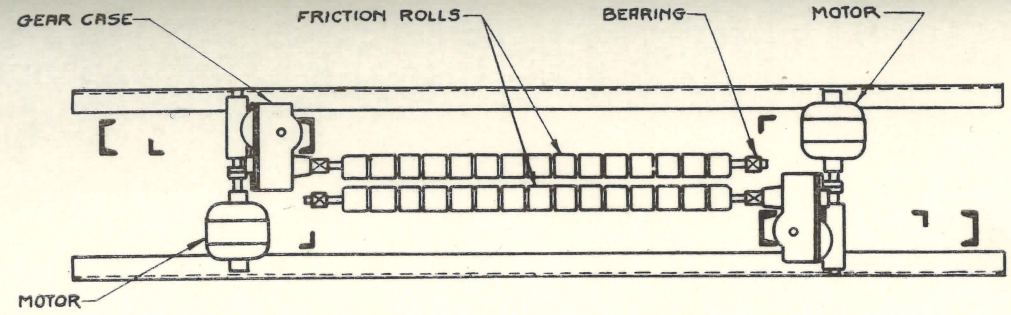
SECTION III
FIG 10



FRICTION ROLL DRIVE

SECTION III

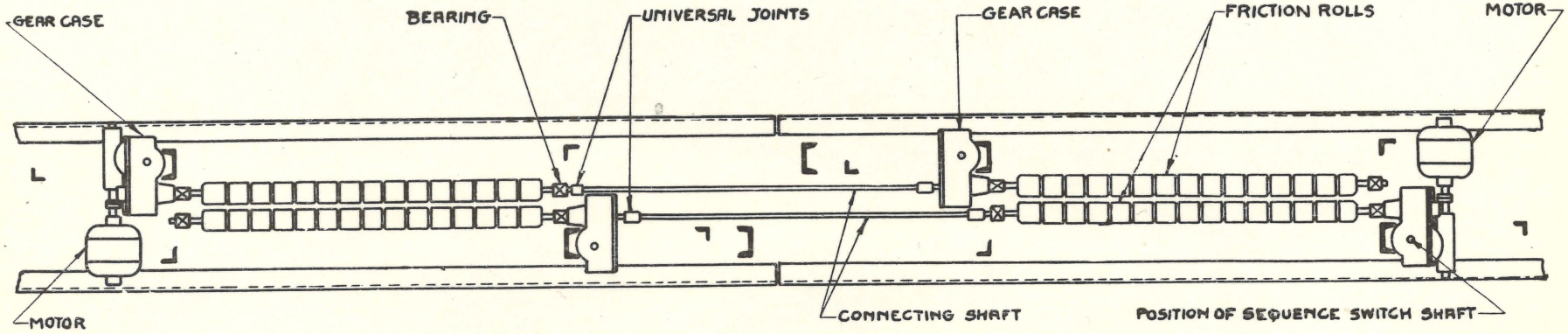
FIG. 11



SINGLE UNIT MOTOR DRIVE

SCHEMATIC LAYOUT OF SELECTOR FRAMES
SHOWING
SINGLE AND DOUBLE UNIT MOTOR DRIVES
FULL MECHANICAL POWER DRIVEN SYSTEM

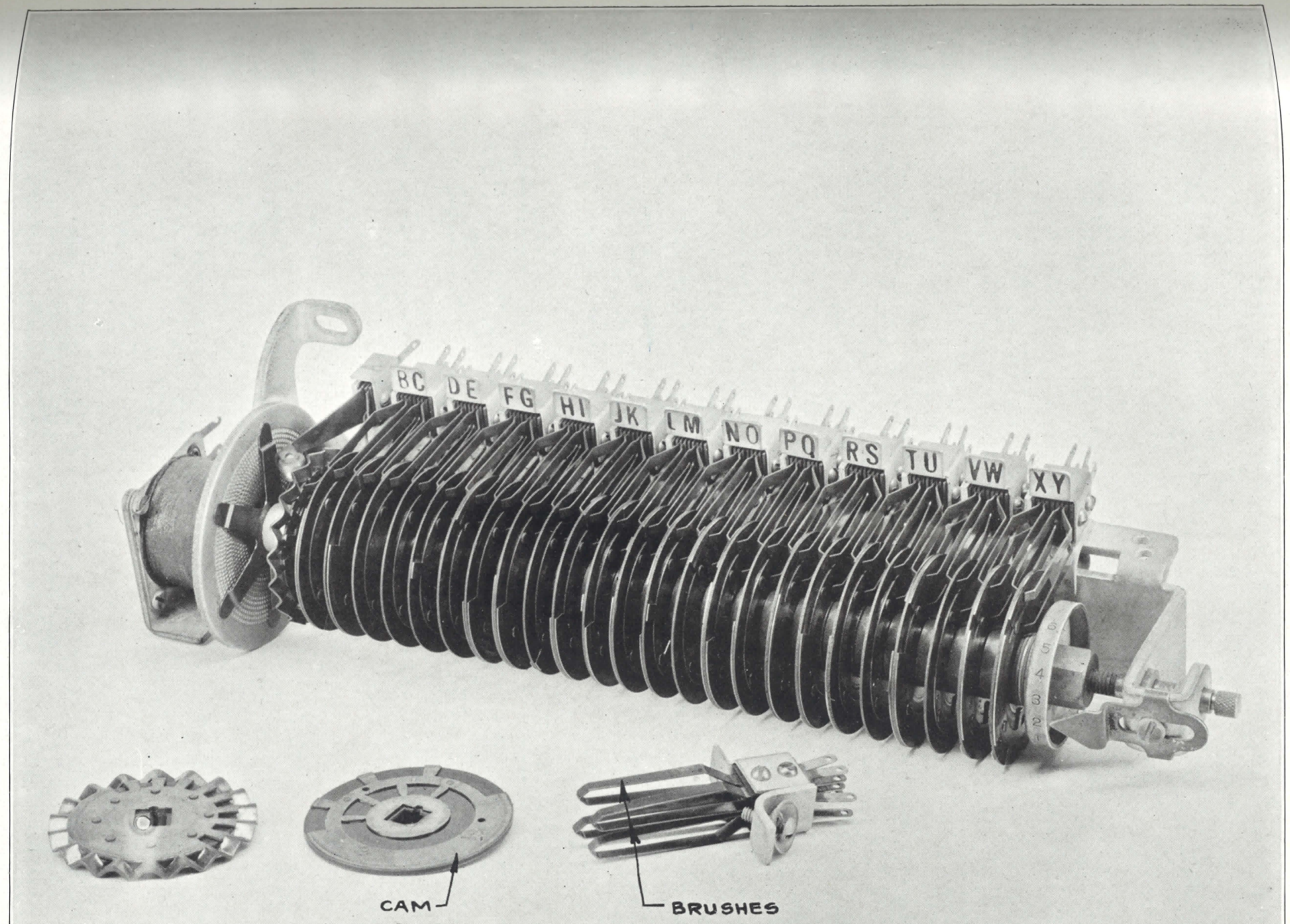
SCALE 1" = 1FT.



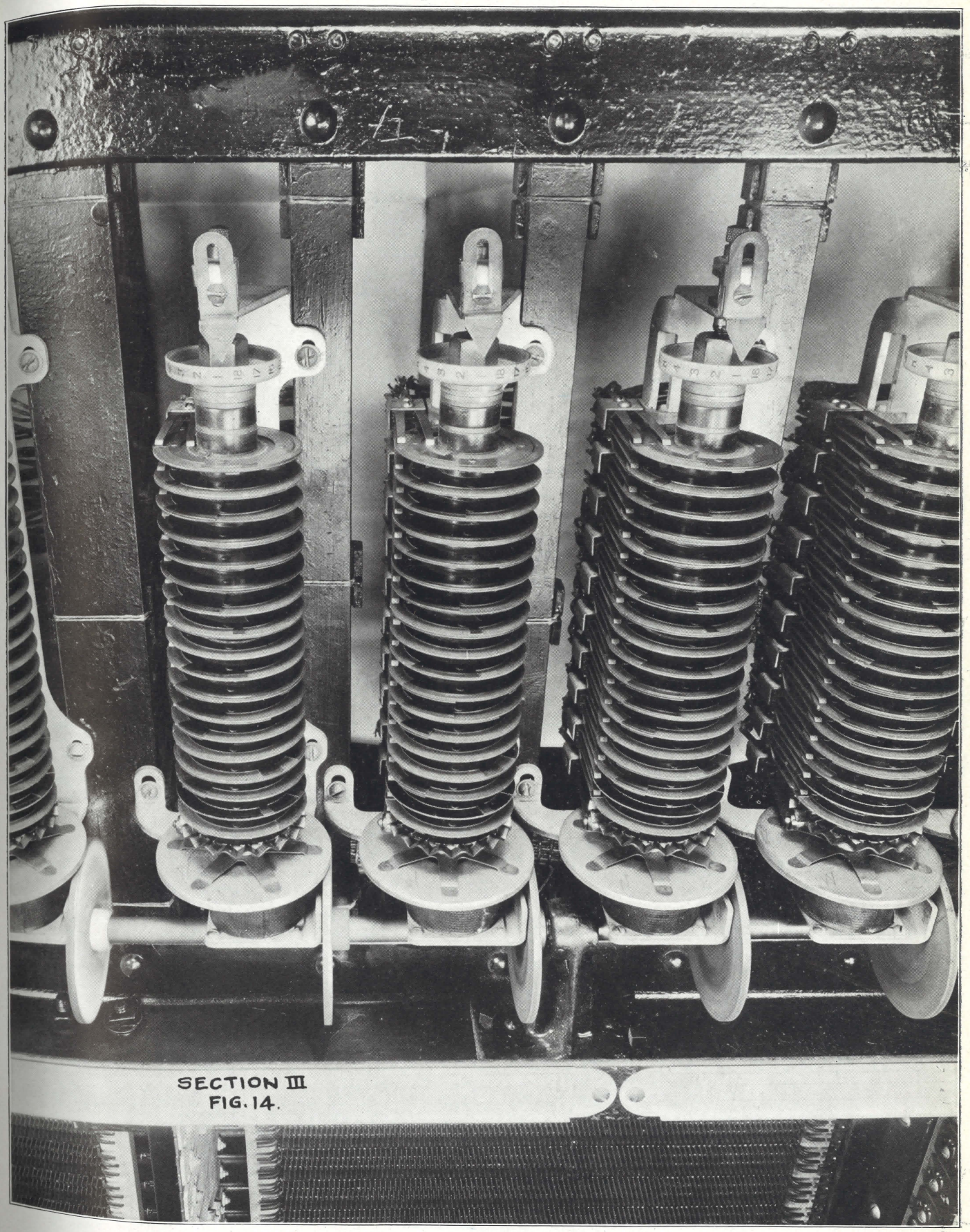
DOUBLE UNIT MOTOR DRIVE

SCHEMATIC LAYOUT OF FRAMES
FOR UNIT MOTOR DRIVE

SECTION III
FIGURE #12

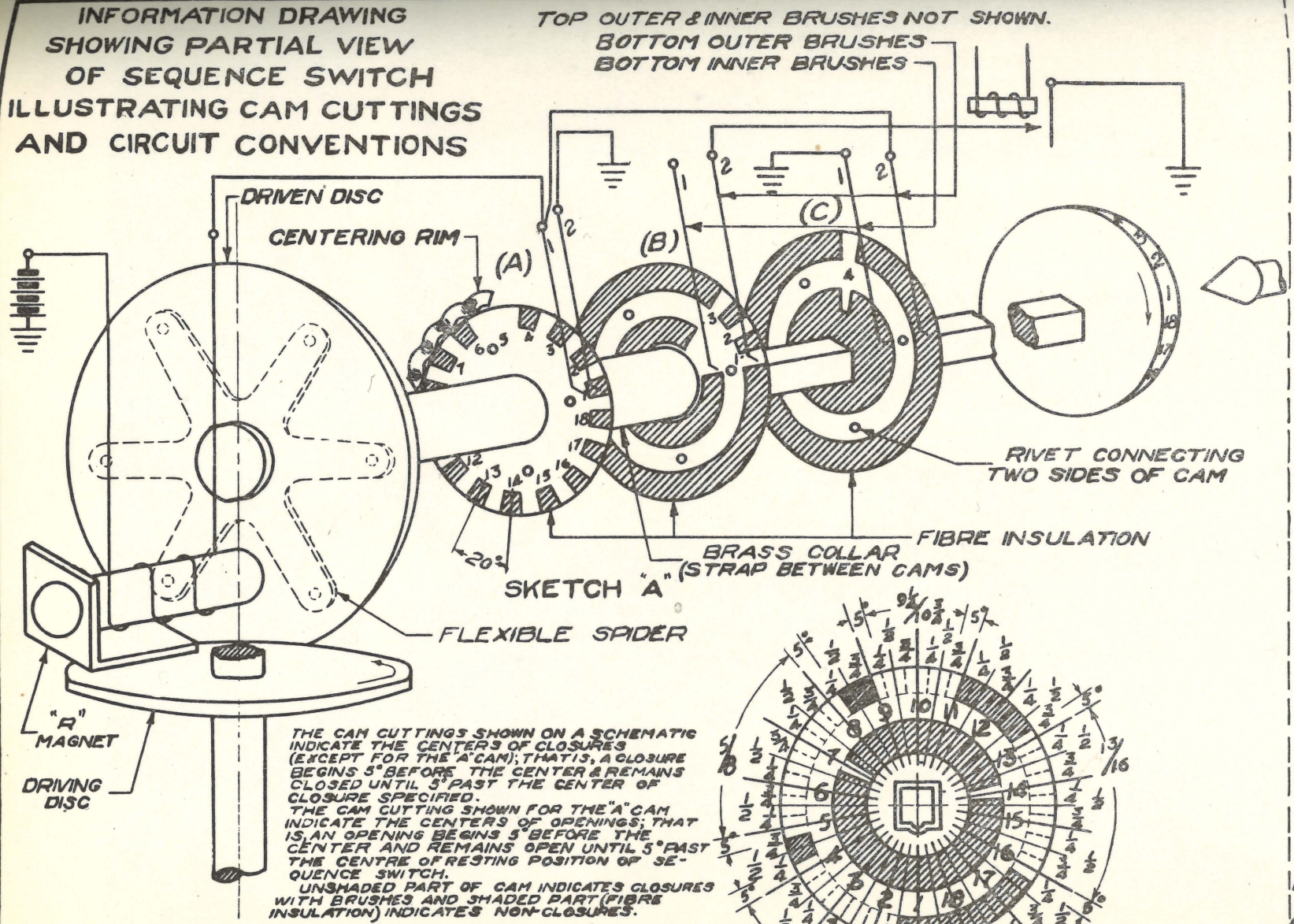


SEQUENCE SWITCH
SECTION III
FIG. 13



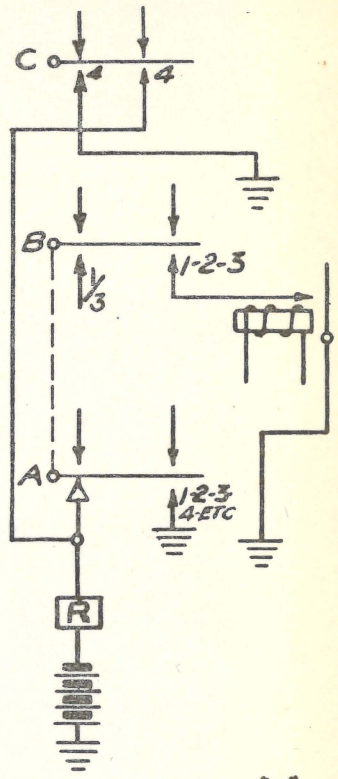
SECTION III
FIG. 14.

INFORMATION DRAWING SHOWING PARTIAL VIEW OF SEQUENCE SWITCH ILLUSTRATING CAM CUTTINGS AND CIRCUIT CONVENTIONS

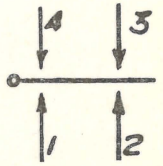


THE CAM CUTTINGS SHOWN ON A SCHEMATIC INDICATE THE CENTERS OF CLOSURES (EXCEPT FOR THE "A" CAM); THAT IS, A CLOSURE BEGINS 5° BEFORE THE CENTER & REMAINS CLOSED UNTIL 5° PAST THE CENTER OF CLOSURE SPECIFIED.
THE CAM CUTTING SHOWN FOR THE "A" CAM INDICATE THE CENTERS OF OPENINGS; THAT IS, AN OPENING BEGINS 5° BEFORE THE CENTER AND REMAINS OPEN UNTIL 5° PAST THE CENTRE OF RESTING POSITION OF SEQUENCE SWITCH.
UNSHADED PART OF CAM INDICATES CLOSURES WITH BRUSHES AND SHADED PART (FIBRE INSULATION) INDICATES NON-CLOSURES.

SKETCH "C"



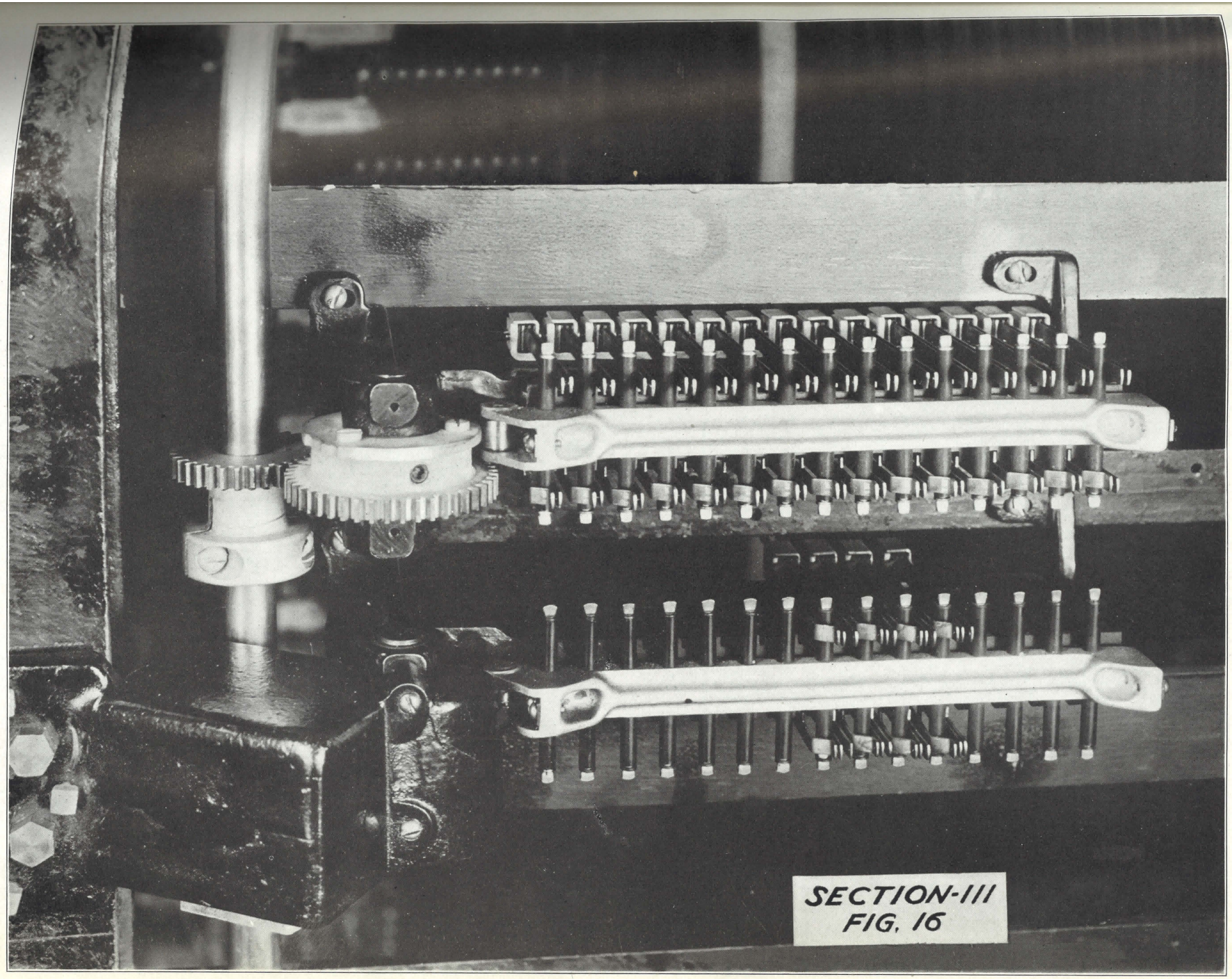
SKETCH "B"



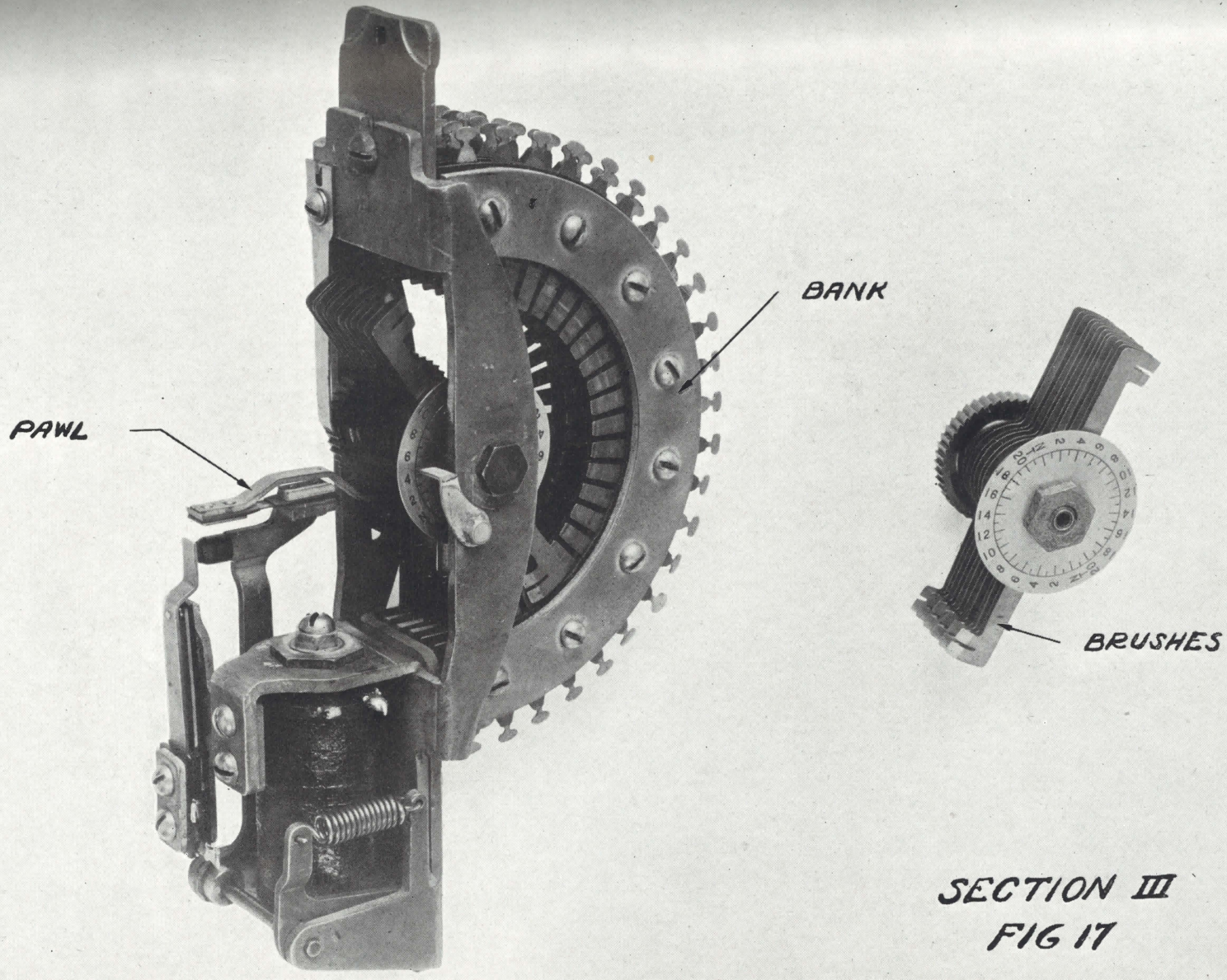
1-LEFT OR BOTTOM INNER CONTACT.
2-LEFT OR BOTTOM OUTER CONTACT.
3-RIGHT OR TOP OUTER CONTACT.
4-RIGHT OR TOP INNER CONTACT

SEQUENCE SWITCH GRAPHICALLY ILLUSTRATED

SECTION III FIG. 15



SECTION-III
FIG. 16



SECTION III
FIG 17

ROTARY LINE SWITCH

Section IV

Frames for Originating and Outgoing Traffic

SECTION IV
FIG. #1

LINE SWITCH & RELAY RACK DETAIL OF EQUIP. & CABLING FULL MECHANICAL SW. BD.	
Approved: 4/21/14 CWE ER Drawn By: BJB Checked By: BK	T-418444 U
WESTERN ELECTRIC COMPANY, Inc.	

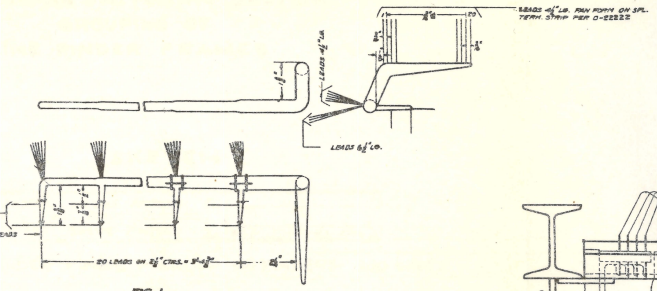
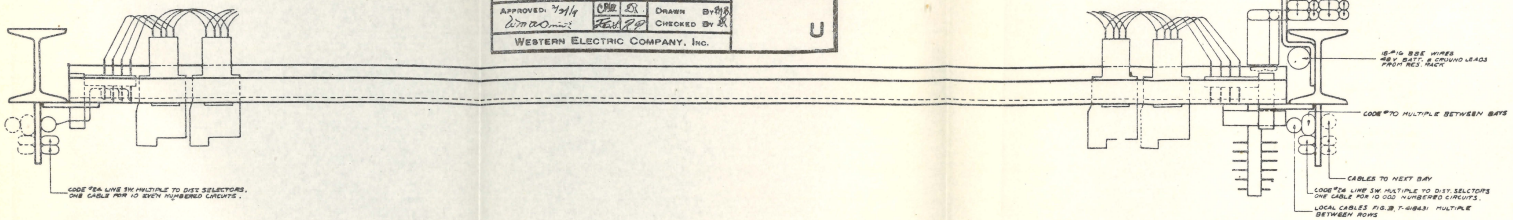
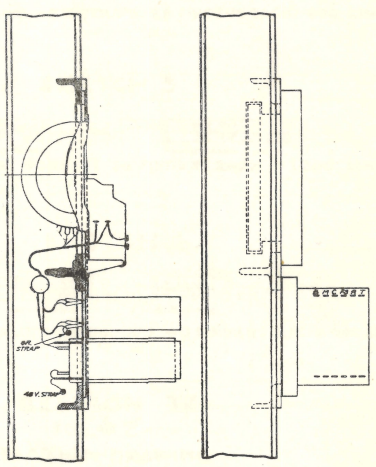


FIG. 1
LOCAL FORM LINE SWITCH & RELAY RACK
FULL MECHANICAL INDIVIDUAL LINE SW. CCT.



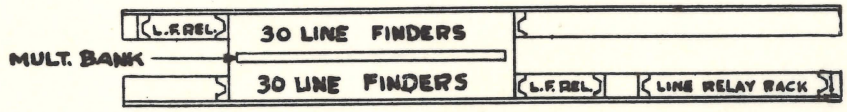


SECTION A-A

ELEVATION OF LINE SWITCHES
& ASSOCIATED EQUIPMENT.

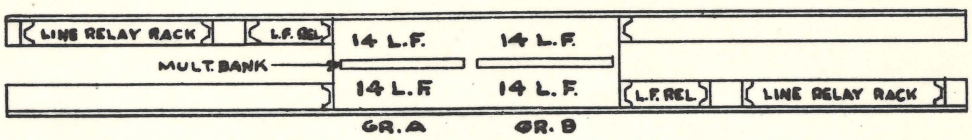
MACHINE SWITCHING SYSTEM
GROUPING OF
LINE FINDER FRAMES

SKETCH 1



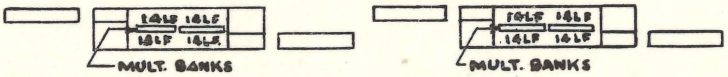
ONE LINE FINDER FRAME - GROUP 60 FINDERS - 300 LINES

SKETCH 2



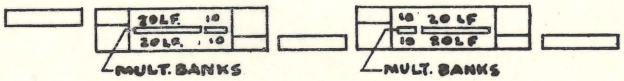
ONE LINE FINDER FRAME - 2 GROUPS 28 FINDERS EACH - 600 LINES

SKETCH 3



TWO LINE FINDER FRAMES - 4 GROUPS 28 FINDERS EACH - 1200 LINES

SKETCH 4



TWO LINE FINDER FRAMES - 3 GROUPS 40 FINDERS EACH - 900 LINES

SECTION IV
FIG. # 2
INFORMATION DRAWING
FLOOR PLAN LAYOUT
LINE FINDER FRAMES
FULL MECHANICAL POWER DRIVEN SYSTEM

ES225165

ES225165

SECTION IV
FIG. #3

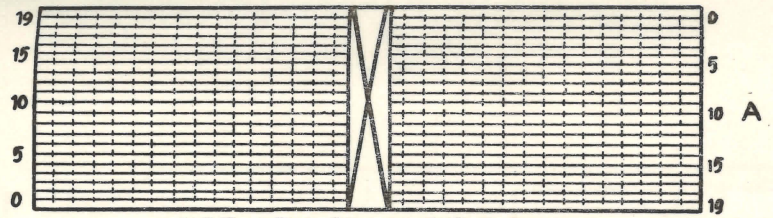
THIS FRAME IS ARRANGED FOR APPARATUS AS LISTED BELOW

30 TRIP MAGNETS
2 CONNECTING BLOCKS
15 MULTIPLE BANKS
60 COMMUTATORS
24 TERMINAL STRIPS
2 JACK BOXES
60 BRUSH RODS
1 FRICTION ROLL DRIVE
60 CLUTCHES
7 ROTARY SELECTORS
1 GROUND BAR
60 COMPENSATORS
81 MOUNTING PLATES
1 RESISTANCE PLATE
60 RACKS
42 BEARING PLATES
2 LAMP MOUNTINGS
6 COMMUTATOR TOP LOCATING PLATES
6 COMMUTATOR BOTTOM LOCATING PLATES
900 MULTIPLE BRUSHES
30 TRIP RODS
10R 2 MOTOR BRACKETS
60 COMMUTATOR BRUSHES

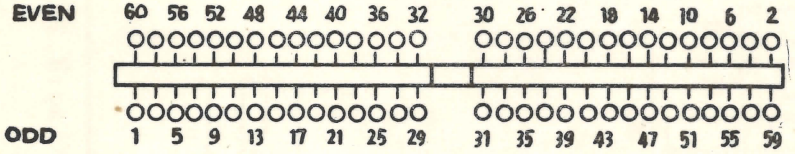
INFORMATION DRAWING
60 SELECTOR GROUP
LINE FINDER FRAME
FULL MECHANICAL
POWER DRIVEN SYSTEM

ES225165

MACHINE SWITCHING SYSTEM
PANEL TYPE
ARRANGEMENT OF LINE FINDER MULTIPLE BANKS



SIDE VIEW OF MULTIPLE BANK

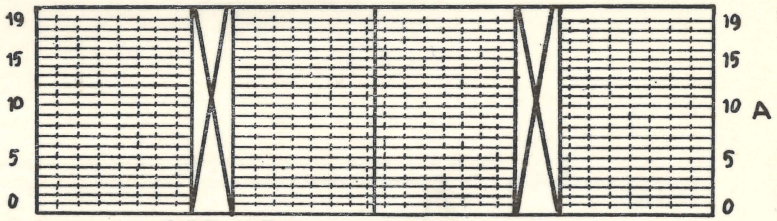


PLAN VIEW

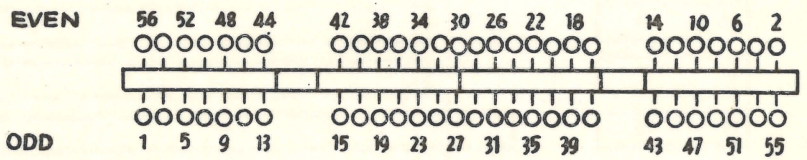
SKETCH 1

ARRANGEMENT OF MULTIPLE BANK USED FOR TERMINATING 300 LINES PER FRAME. 300 LINES MULTIPLED BEFORE A MAXIMUM OF 60 LINE FINDERS

ARRANGEMENT OF LINE FINDER
MULTIPLE BANKS
FULL MECHANICAL POWER DRIVEN SYSTEM



SIDE VIEW OF MULTIPLE BANK

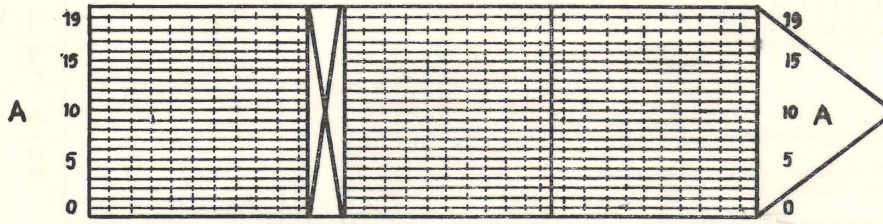


PLAN VIEW

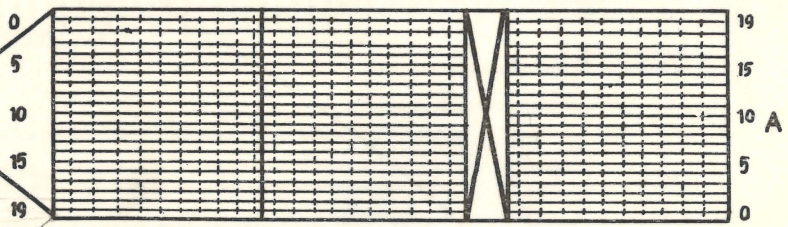
SKETCH 3

ARRANGEMENT OF MULTIPLE BANK USED FOR TERMINATING 600 LINES PER FRAME. 300 LINES MULTIPLED BEFORE A MAXIMUM OF 28 LINE FINDERS

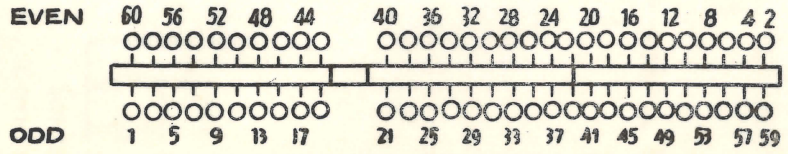
NOTE: "A" INDICATES THE END OF THE MULTIPLE BANKS ADJACENT TO THE LINE RELAY RACK



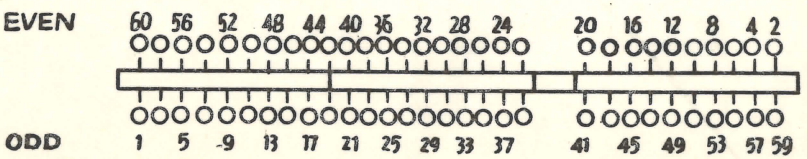
SIDE VIEW OF MULTIPLE BANK
FRAME NO. 1



SIDE VIEW OF MULTIPLE BANK
FRAME NO. 2



PLAN VIEW FRAME NO. 1



PLAN VIEW FRAME NO. 2

SKETCH 2

ARRANGEMENT OF MULTIPLE BANKS USED FOR TERMINATING 900 LINES ON TWO ADJACENT FRAMES. 300 LINES MULTIPLED BEFORE A MAXIMUM OF 40 LINE FINDERS

SECTION IV
FIG. NO 4

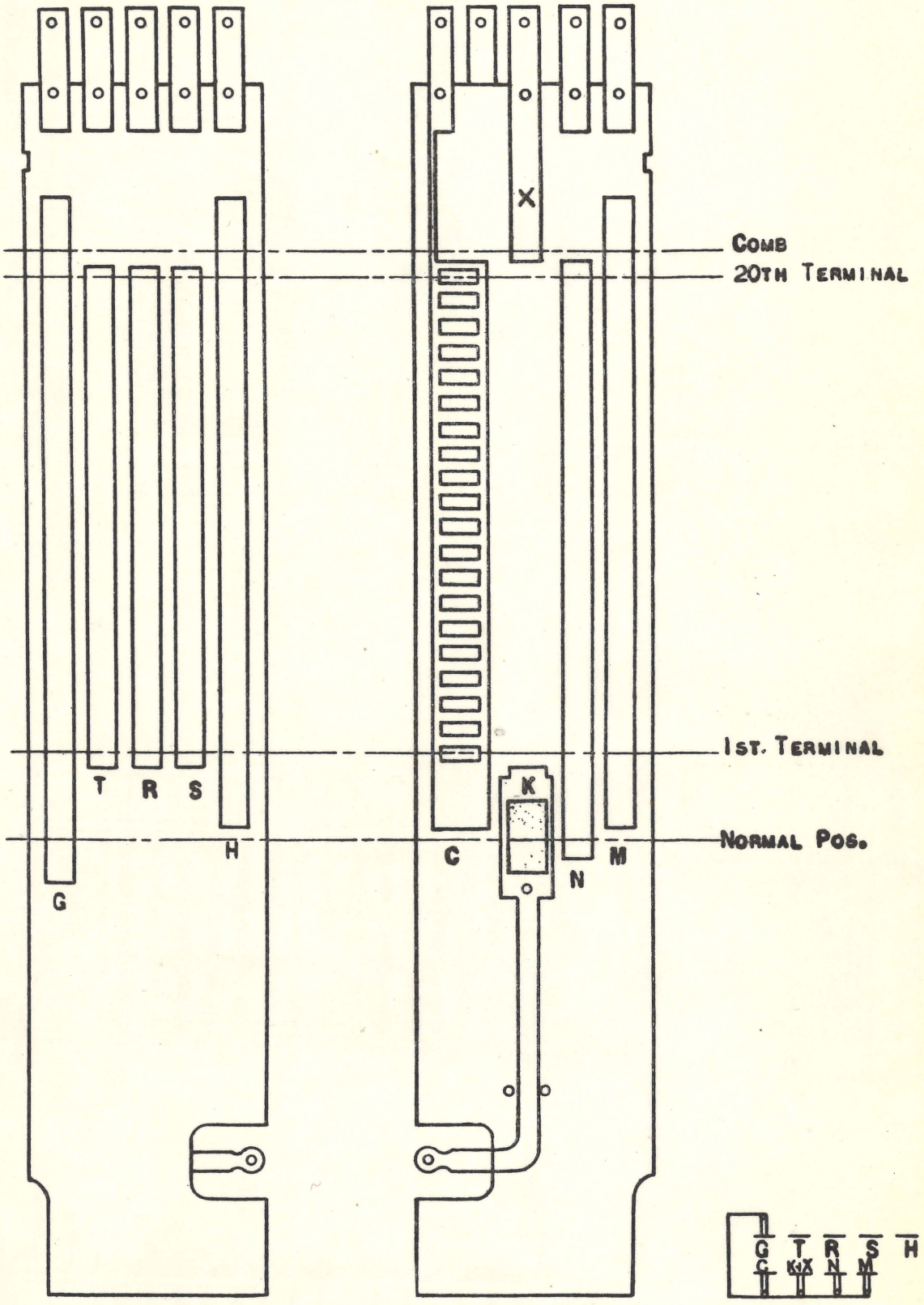
A. T. & T. Co.
Eng. Dept.

MACHINE SWITCHING SYSTEM

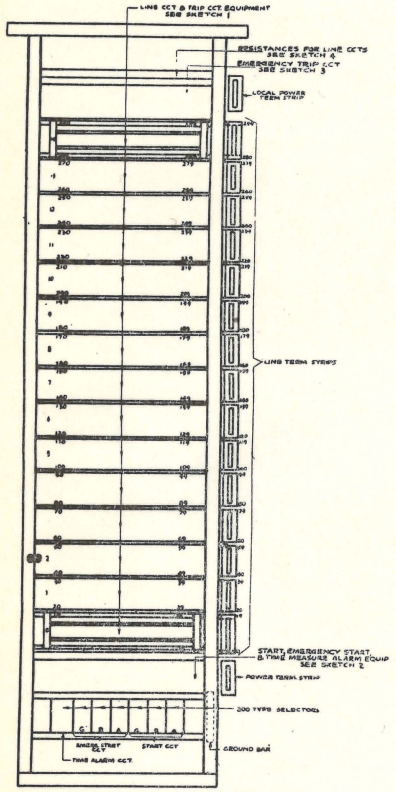
PANEL TYPE

LINE FINDER COMMUTATOR

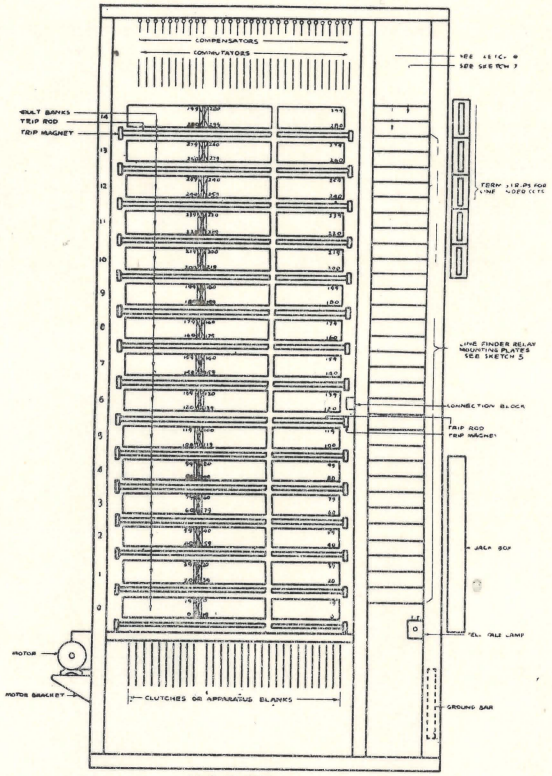
806 - 9
INFORMATION
SEPT. 1, 1920.
ENGINEER
DRAFTSMAN



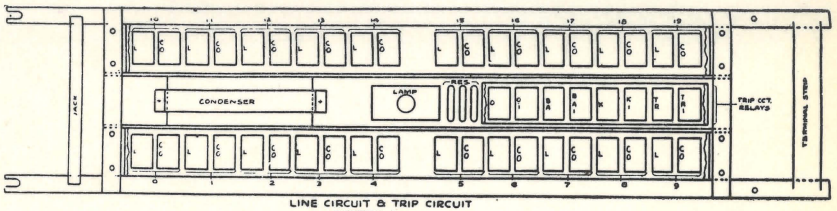
SECTION IV
FIG. 5



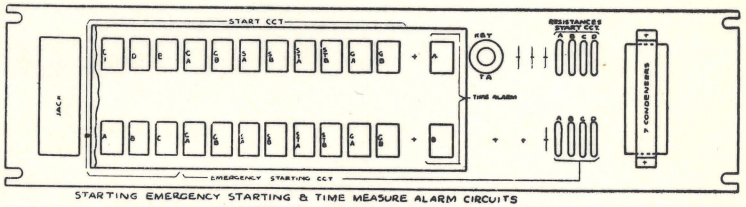
RELAY RACK



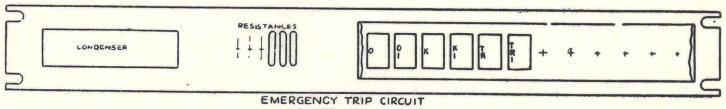
LINE FINDER
ARRANGEMENT FOR 40 LINE FINDERS FOR 300 LINES



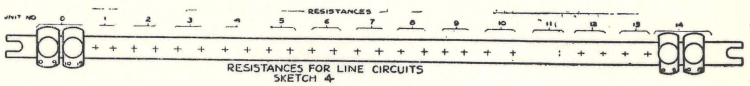
LINE CIRCUIT & TRIP CIRCUIT
SKETCH 1



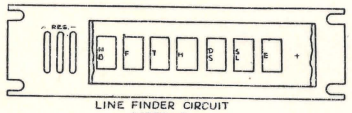
STARTING EMERGENCY STARTING & TIME MEASURE ALARM CIRCUITS
SKETCH 2



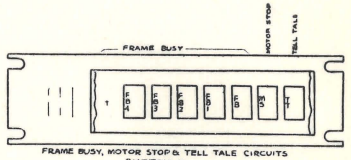
EMERGENCY TRIP CIRCUIT
SKETCH 3



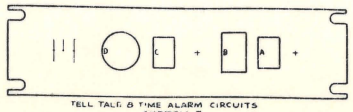
RESISTANCES FOR LINE CIRCUITS
SKETCH 4



LINE FINDER CIRCUIT
SKETCH 5



FRAME BUSY, MOTOR STOP & TELL TALE CIRCUITS
SKETCH 6



TELL TALE & TIME ALARM CIRCUITS
SKETCH 7

SECTION IV
FIG. NO. 6

INFORMATION DRAWING
EQUIPMENT
LINE FINDER FRAME AND
LINE RELAY RACK
FULL MECHANICAL POWER DRIVEN SYSTEM

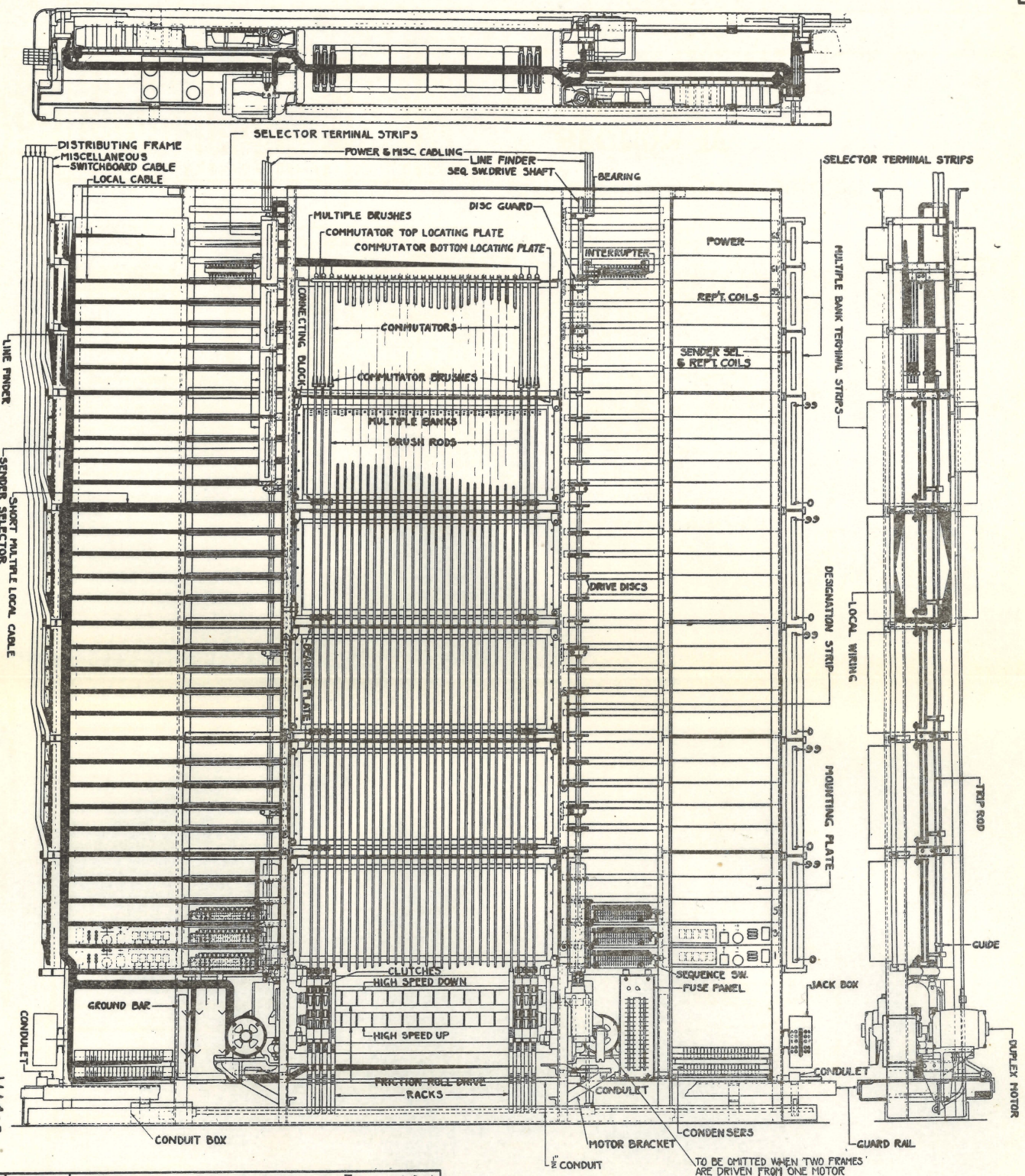
APPROVED | E.S.S. | DRAWN BY E.E.
DATE 7/9/61 | A.I. H.S.S. | CHECKED BY

WESTERN ELECTRIC CO. INC. N.Y. END DEPT.

FS-249089
U

1172-A

ES-22516/7



1114-A

SECTION IV
FIG. #7

THIS FRAME IS ARRANGED FOR APPARATUS AS LISTED BELOW

10	MOTOR BRACKETS
1	FRICTION ROLL DRIVE
60	RACKS
2	FUSE PANELS
2	JACK BOXES
60	GUIDES
60	TRIP RODS
24	BEARING PLATES
8	INTERRUPTERS
80	CONDENSERS
5	MULTIPLE BANKS
60	BRUSH RODS
60	COMMUTATOR BRUSHES
300	MULTIPLE BRUSHES
60	COMMUTATORS
12	COMMUTATOR LOCATING PLATES
60	SEQ SW DRIVE DISCS
2	SEQ SW DRIVE SHAFT
12	BEARINGS
24	TERMINAL STRIPS
64	MOUNTING PLATES
60	SEQUENCE SWITCHES
10	DESIGNATION STRIPS

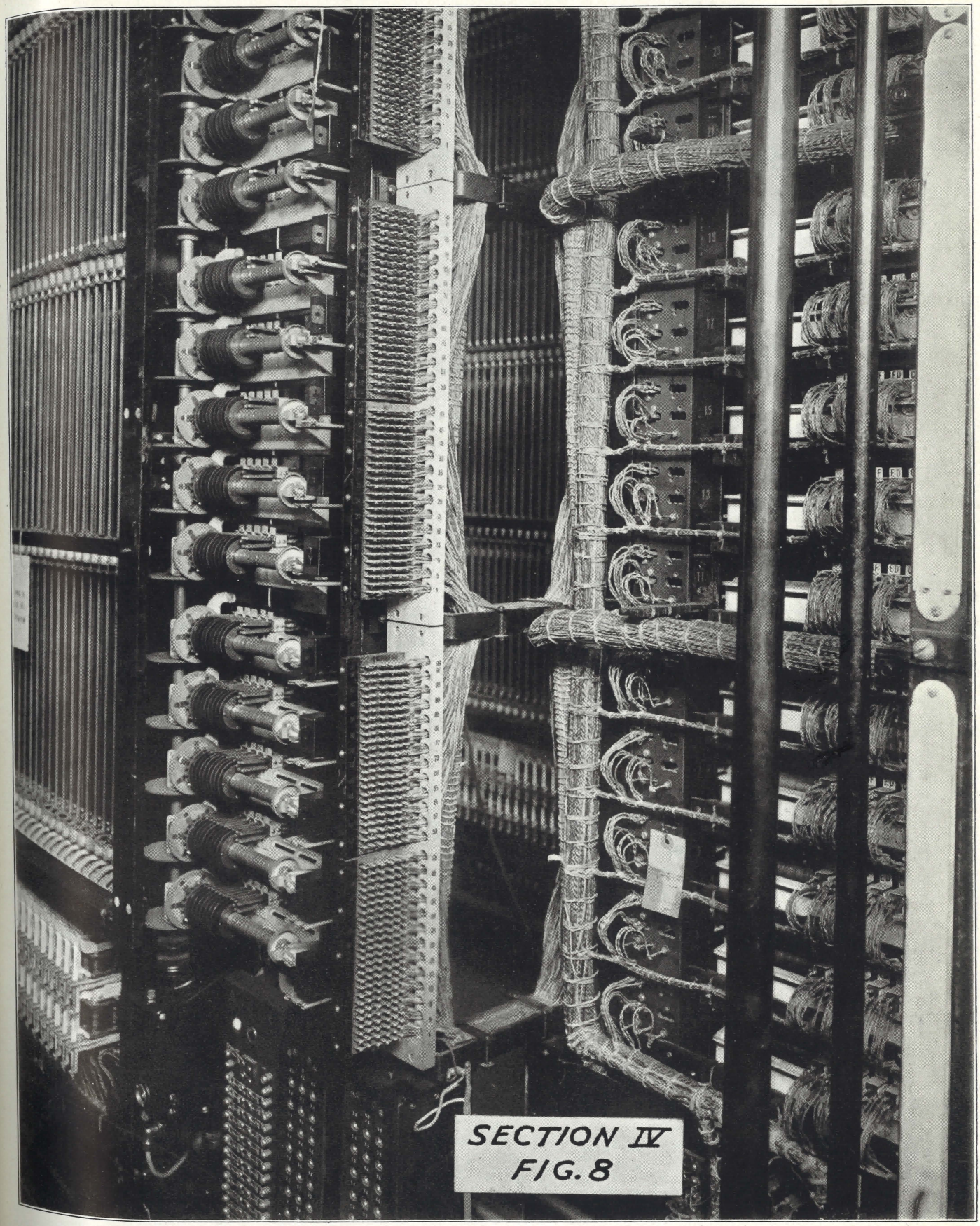
INFORMATION DRAWING
DISTRICT SELECTOR FRAME
FULL MECHANICAL
POWER DRIVEN SYSTEM

SCALE: 3/4"

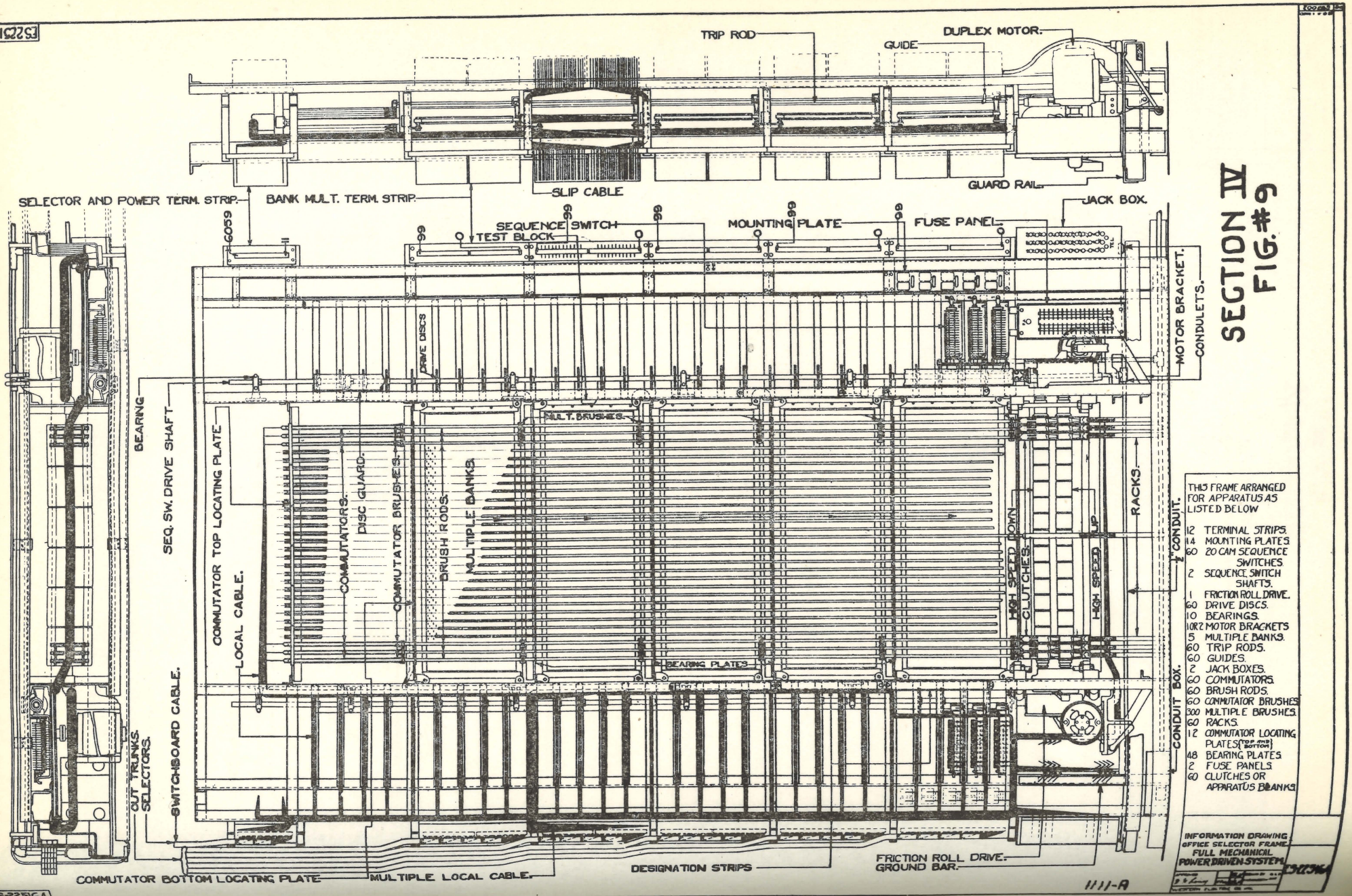
Western Electric Company, Inc.

ES-22516/7

ES-22516/7



SECTION IV
FIG. 8



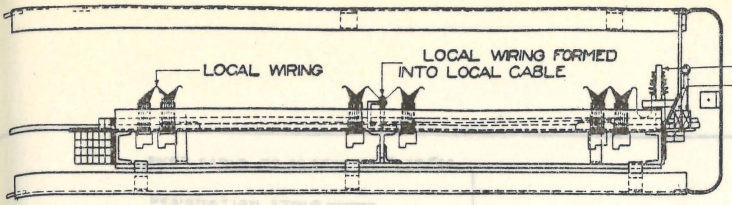
SECTION IV
FIG. #9

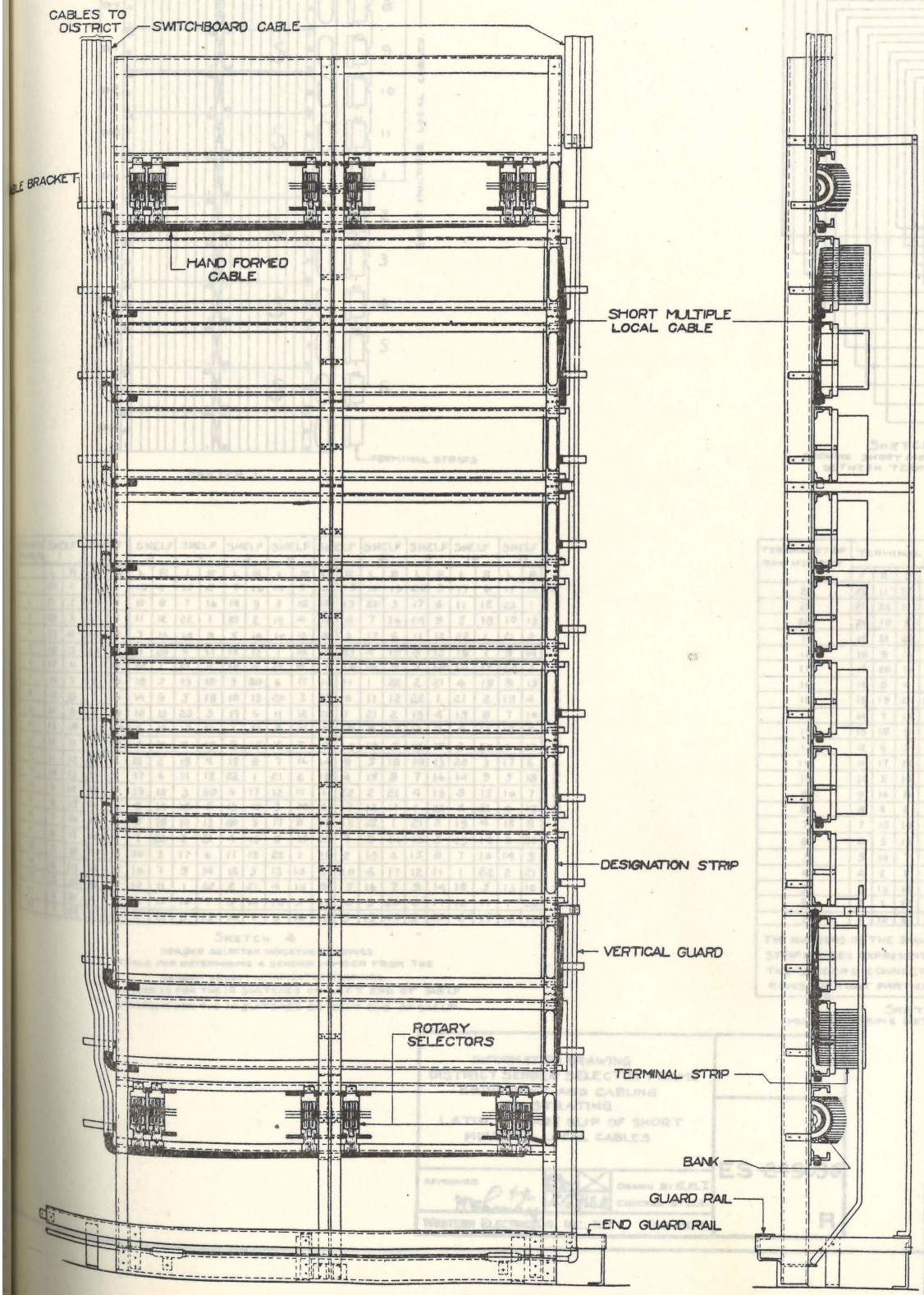
THIS FRAME ARRANGED FOR APPARATUS AS LISTED BELOW

12	TERMINAL STRIPS.
14	MOUNTING PLATES.
60	20 CAM SEQUENCE SWITCHES.
2	SEQUENCE SWITCH SHAFTS.
1	FRICTION ROLL DRIVE.
60	DRIVE DISCS.
10	BEARINGS.
10R2	MOTOR BRACKETS
5	MULTIPLE BANKS.
60	TRIP RODS.
60	GUIDES.
2	JACK BOXES.
60	COMMUTATORS.
60	BRUSH RODS.
60	COMMUTATOR BRUSHES.
300	MULTIPLE BRUSHES.
60	RACKS.
12	COMMUTATOR LOCATING PLATES {TOP and BOTTOM}
48	BEARING PLATES.
2	FUSE PANELS.
60	CLUTCHES OR APPARATUS BLANKS.

INFORMATION DRAWING.
OFFICE SELECTOR FRAME.
FULL MECHANICAL
POWER DRIVEN SYSTEM.

ES-225164





THIS FRAME IS ARRANGED FOR THE FOLLOWING APPARATUS
240 - SELECTORS WITH BANKS.
12 - DESIGNATION STRIPS.
12 - TERMINAL STRIPS.

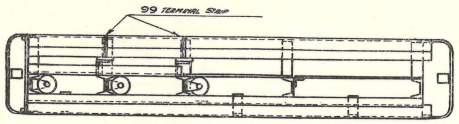
INFORMATION DRAWING
DISTRICT SENDER SEL. FRAME
FULL MECHANICAL
POWER DRIVEN SYSTEM

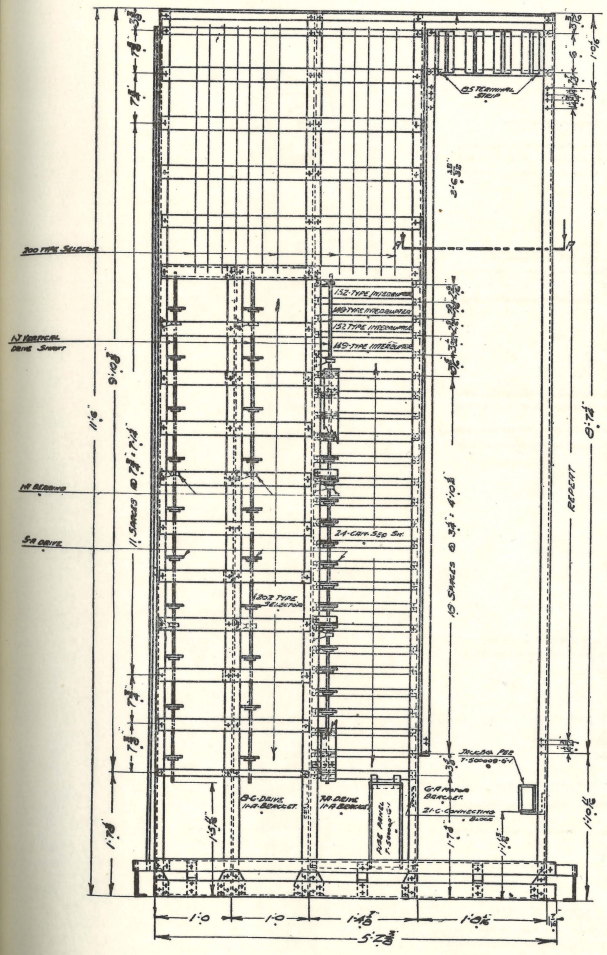
ES-225168

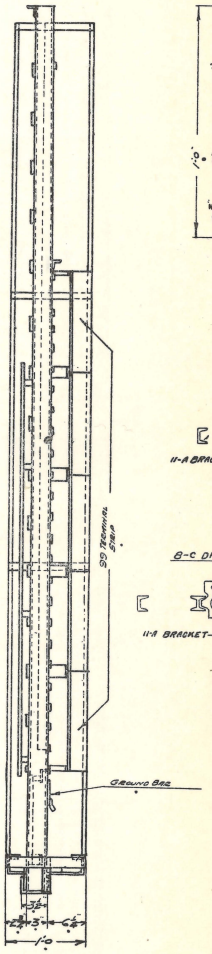
WESTERN ELECTRIC INC. N.Y. ENG. DEPT.

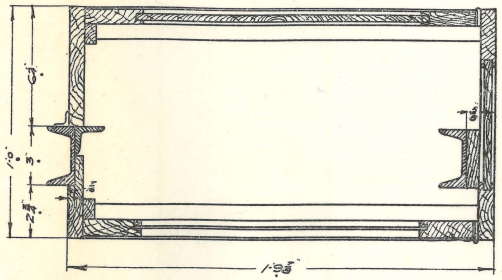
SECTION IV
FIG. #10

1115-R









SEC. A-A

SHOWING ARRANGEMENT OF RELAY BAY CASING.

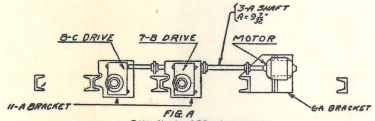


FIG. A
SHOWING ARRANGEMENT OF SINGLE-UNIT DRIVE

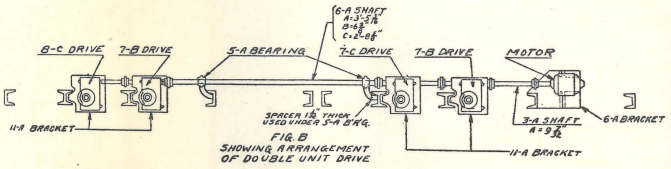


FIG. B
SHOWING ARRANGEMENT OF DOUBLE UNIT DRIVE

SECTION IV
FIG. #12

NOTES:-

*THIS FRAME ARRANGED FOR APPARATUS AS LISTED BELOW

*20	202 TYPE SELECTORS
*20	B TYPE SEQUENCE SWITCHES
*2	149 TYPE INTERRUPTERS
*2	152 TYPE INTERRUPTERS
*60	200 TYPE SELECTORS
*52	1⅜" MOUNTING PLATES 1'-7" LONG ON 2" CENTERS
*8	05 TERMINAL STRIPS
80	99 TERMINAL STRIPS
	7A- DRIVE AND 11-A BRACKET FOR SEQUENCE SWITCHES
	*8C- DRIVE AND 11-A BRACKET FOR 202 TYPE SWITCHES
1	*6-A MOTOR BRACKET
1	*21-C CONNECTING BLOCK
1	*JUNCTION BOX T-500009-GV
1	*FUSE PANEL PER T-500000-GV
1	*RELAY BAY CASING PER T-459226-GV
14	*14 BEARING
40	*5-A DRIVE
1	3-A SHAFT A=9⅞"
	9-TYPE MAGNETIC SHIELD
	76-TYPE DESIGNATION STRIP

NOTE:-
1-WHEN USED WITH RELAY CASING WITH TWO PARTITIONS OMIT 2-1⅜" MOUNTING PLATES 1'-7" LG. ON 2" CENTERS AND 2 DESIGNATION STRIPS.
2- WHEN 847 TYPE CONDENSER MOUNTING PLATE IS USED OMIT ONE DESIGNATION STRIP FOR EACH 847 TYPE CONDENSER MOUNTING PLATE.

200263	APP'D
ISSUE-1 9-25-20	
FIGS. A & B WERE NOT SHOWN. "202 TYPE SELECTORS" WERE REVISED TO "202 TYPE SELECTORS."	
CASE 10063 A.S.&S.U.	
ISSUE-2 11-13-21 C.R.D.J. U.P.W.	

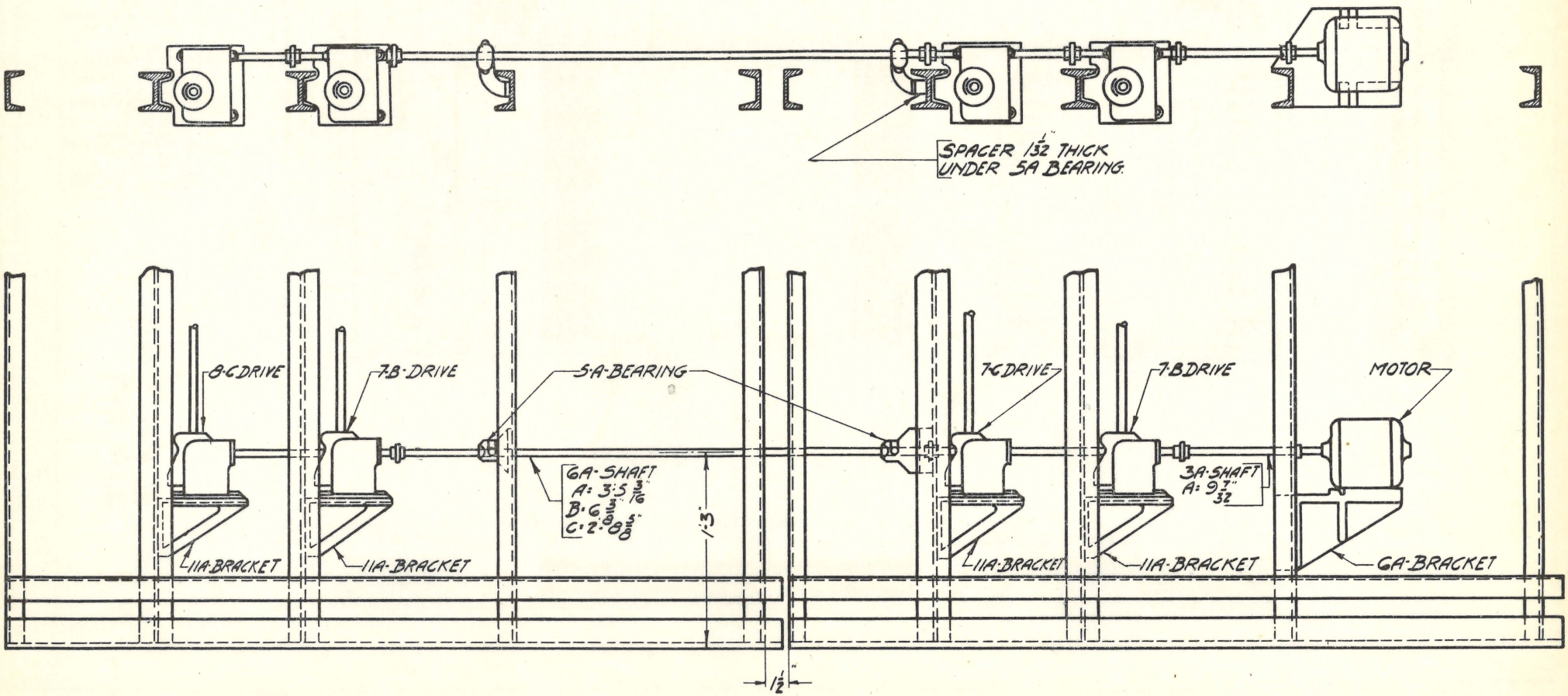
SENDER FRAME SUBSCRIBERS
FOR LINE FINDER OFFICE- TWO DIGIT CODE
11'-6" HIGH
CAPACITY FIVE SENDERS
FULL MECHANICAL POWER DRIVE SYSTEM

1"=1FT.

APPROVED 12-4-20		R.R.K.	DRAWN BY R.G.S.
			CHECKED BY E.F.H.

WESTERN ELECTRIC CO., INC., N.Y. ENG. DEPT.

DRIVE AND SHAFT ARRANGEMENT
FOR SUBSCRIBERS SENDER FRAME
TWO DIGIT OFFICE CODE
DOUBLE UNIT DRIVE. FULL MECHANICAL
POWER DRIVEN SYSTEM

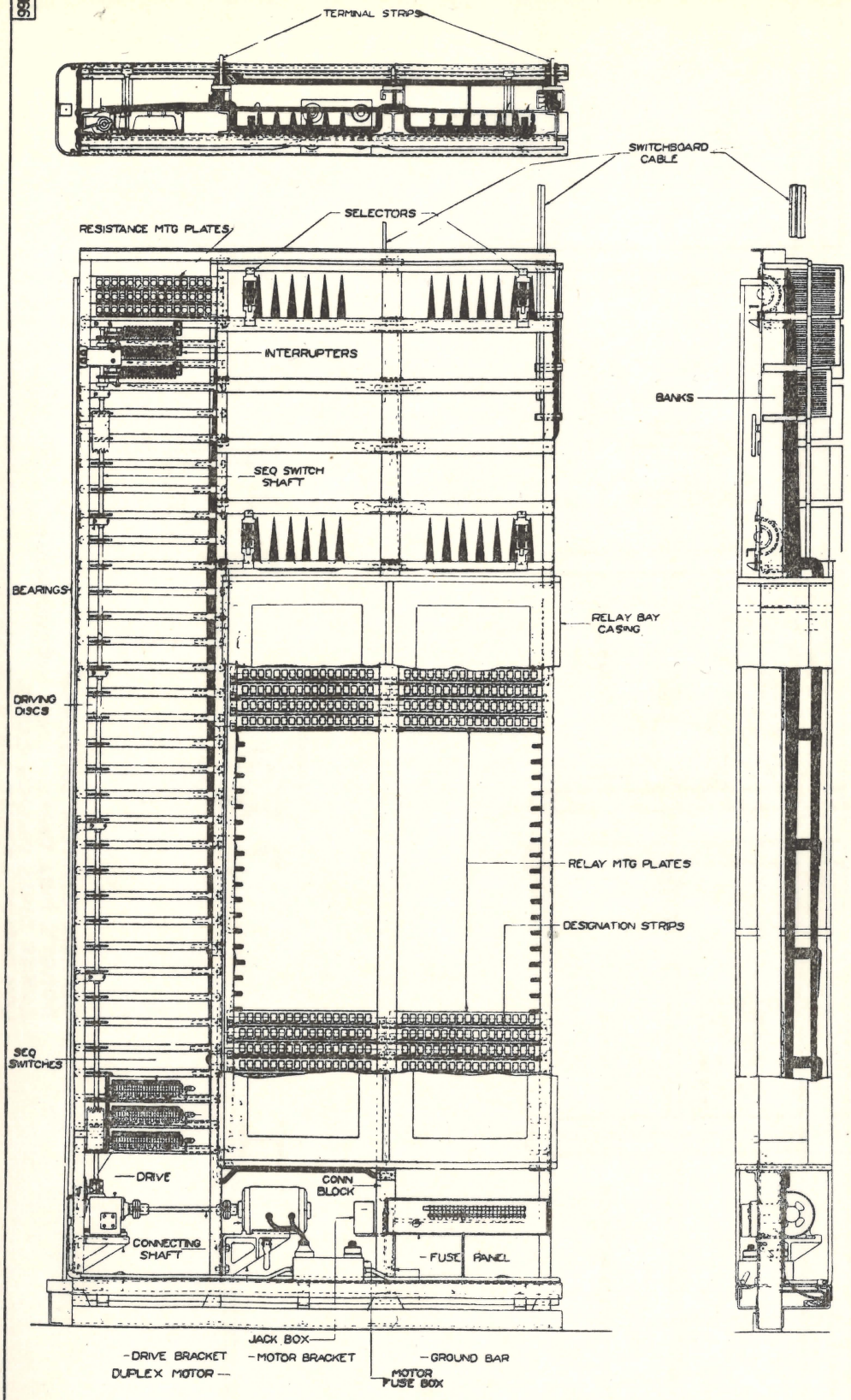


SECTION IV
FIG. 13

FRAME NO-2

FRAME NO-1

ES-22366



ES-22366

THIS FRAME IS ARRANGED FOR THE FOLLOWING APPARATUS

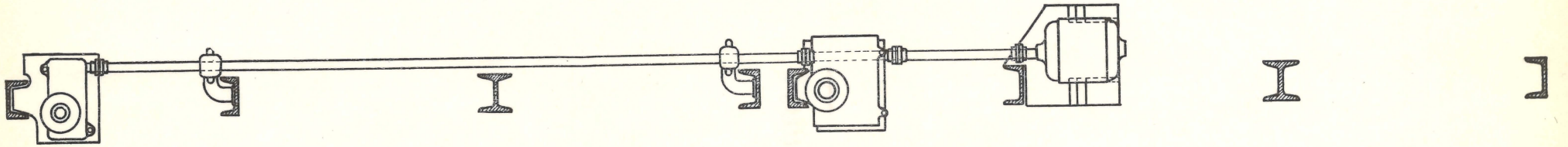
3 - INTERRUPTERS
30 - SEQUENCE SWITCHES
30 - DRIVING DISCS
1 - SEQ SW SHAFT
6 - BEARINGS
65 - SELECTORS & BANKS
75 - MTG. PLATES
1 - RELAY BAY CASING
1 - DRIVE BRACKET
1 - MOTOR BRACKET
1 - CONNECTING SHAFT
72 - CONNECTING BLOCK
1 - DESIGNATION STRIPS
1 - JACK BOX
1 - FUSE PANEL
1 - GROUND BAR
13 - TERMINAL STRIPS

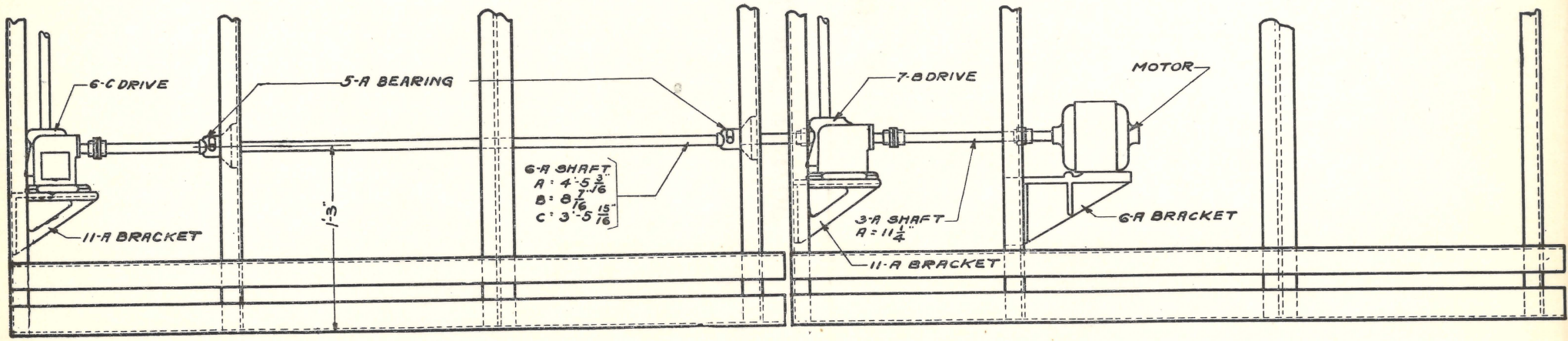
INFORMATION DRAWING
SUBSCRIBERS SENDER FRAMES
3 DIGIT OFFICE CODE
FULL MECH. POWER DRIV. SYS.

ES-22366

SECTION IV
FIG. # 14

DRIVE AND SHAFT ARRANGEMENT
FOR SUBSCRIBERS SENDER FRAME
THREE DIGIT OFFICE CODE
DOUBLE UNIT DRIVE. FULL MECHANICAL
POWER DRIVEN SYSTEM.





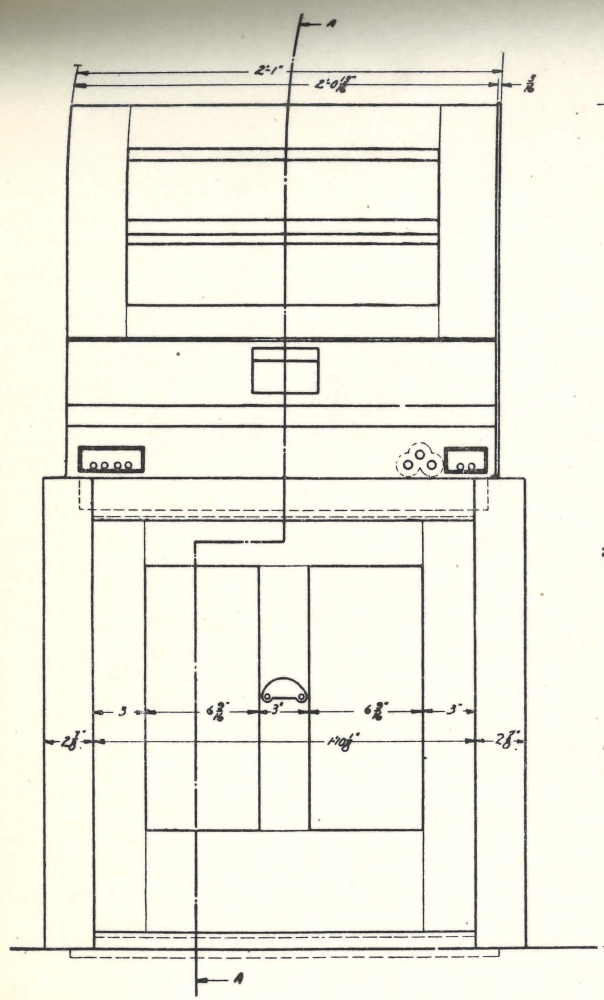
FRAME NO. 2.

FRAME NO. 1.

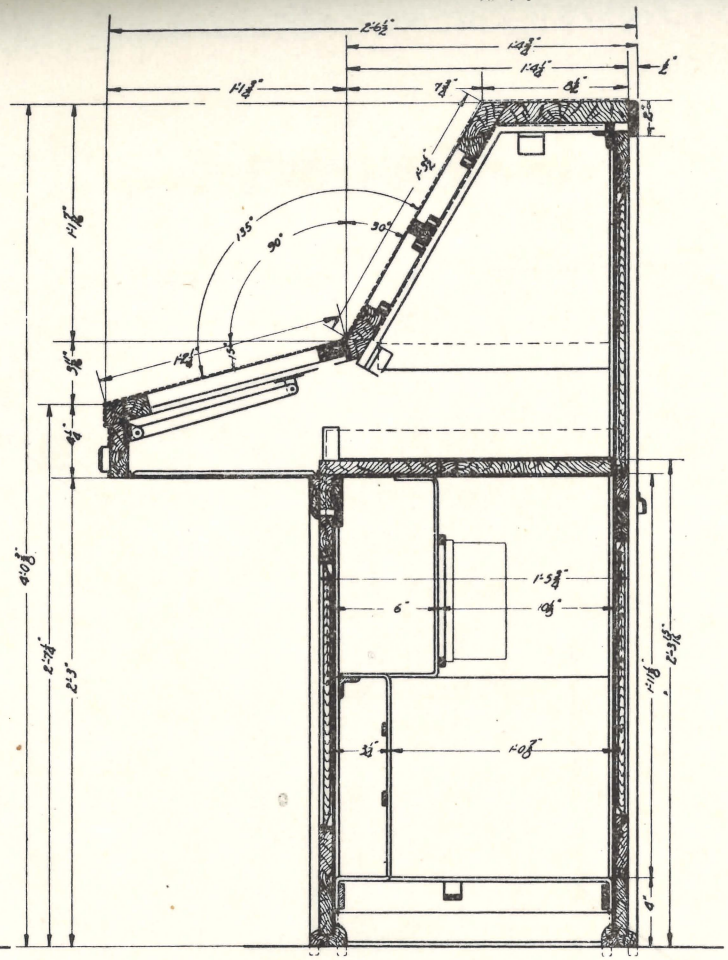
SECTION IV
FIG. 15

Section V

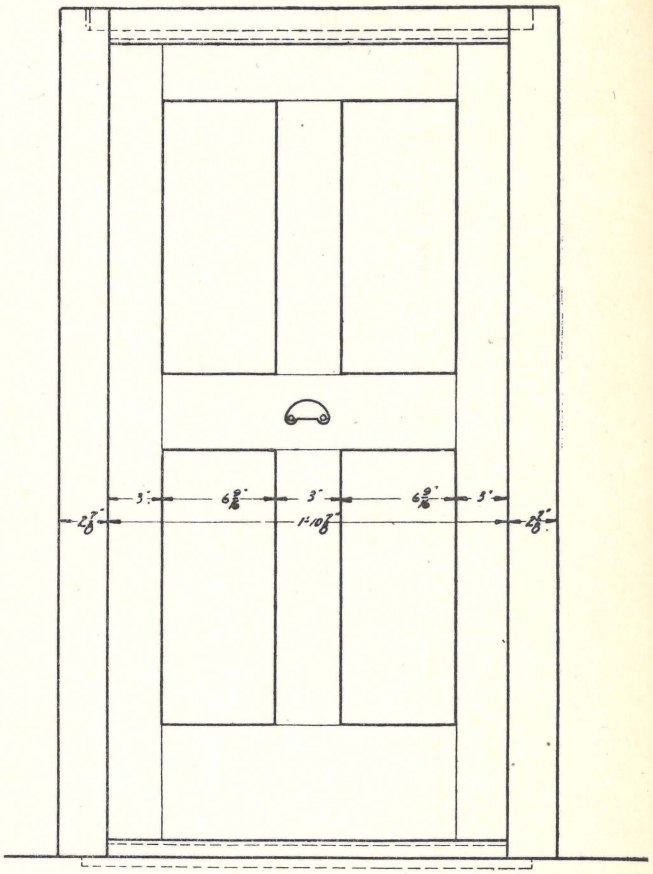
Frames for Incoming Traffic



FRONT VIEW.



SECTION A-A



REAR VIEW

SECTION V FIG. 1

INFORMATION DRAWING
SECTION ASSEMBLY
ONE POSITION CORDLESS SECTION.
FULL MECHANICAL POWER DRIVEN SYSTEM

SCALE: 3"=1 FT.

APPROVED

R.P.

DRAWN BY B.G.

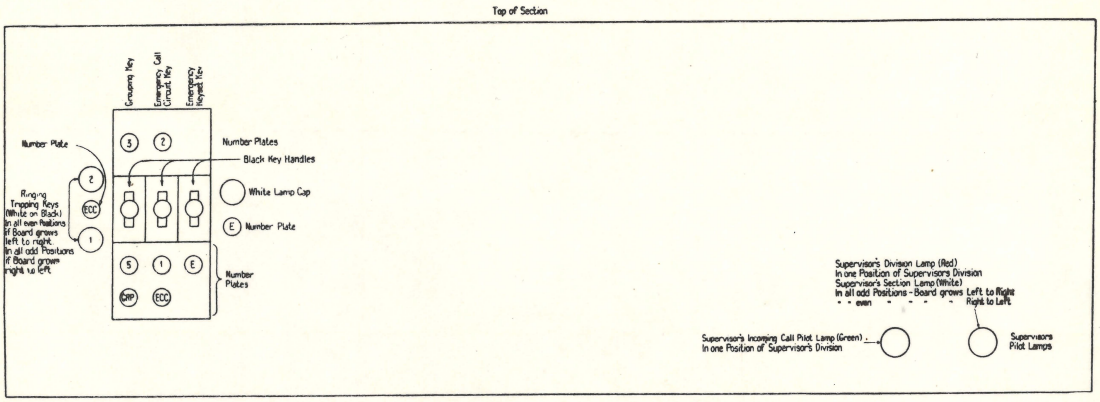
CHECKED BY G.S.

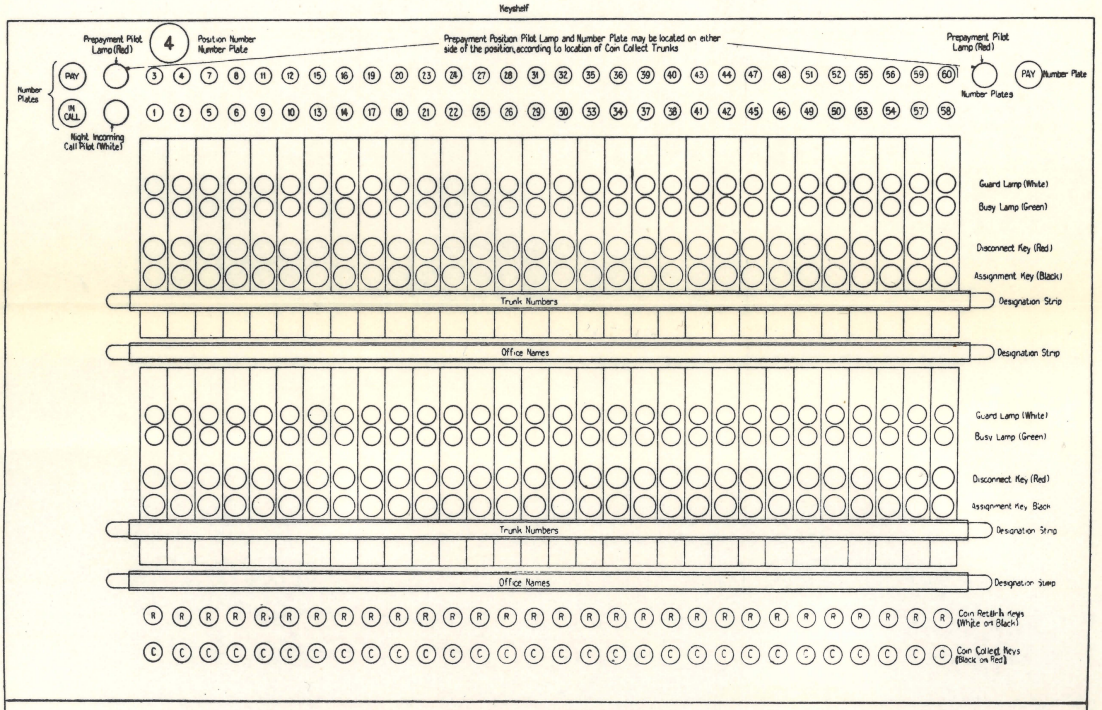
WESTERN ELECTRIC CO., INC N.Y. ENG DEPT

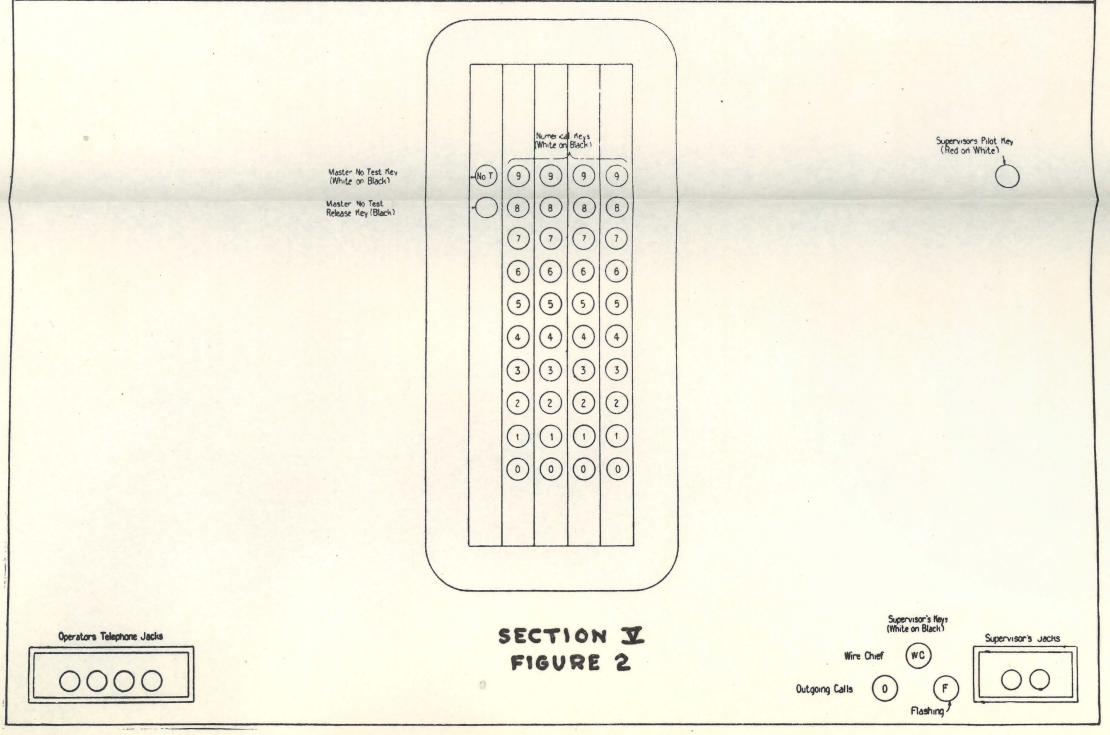
E.S. 249098

R

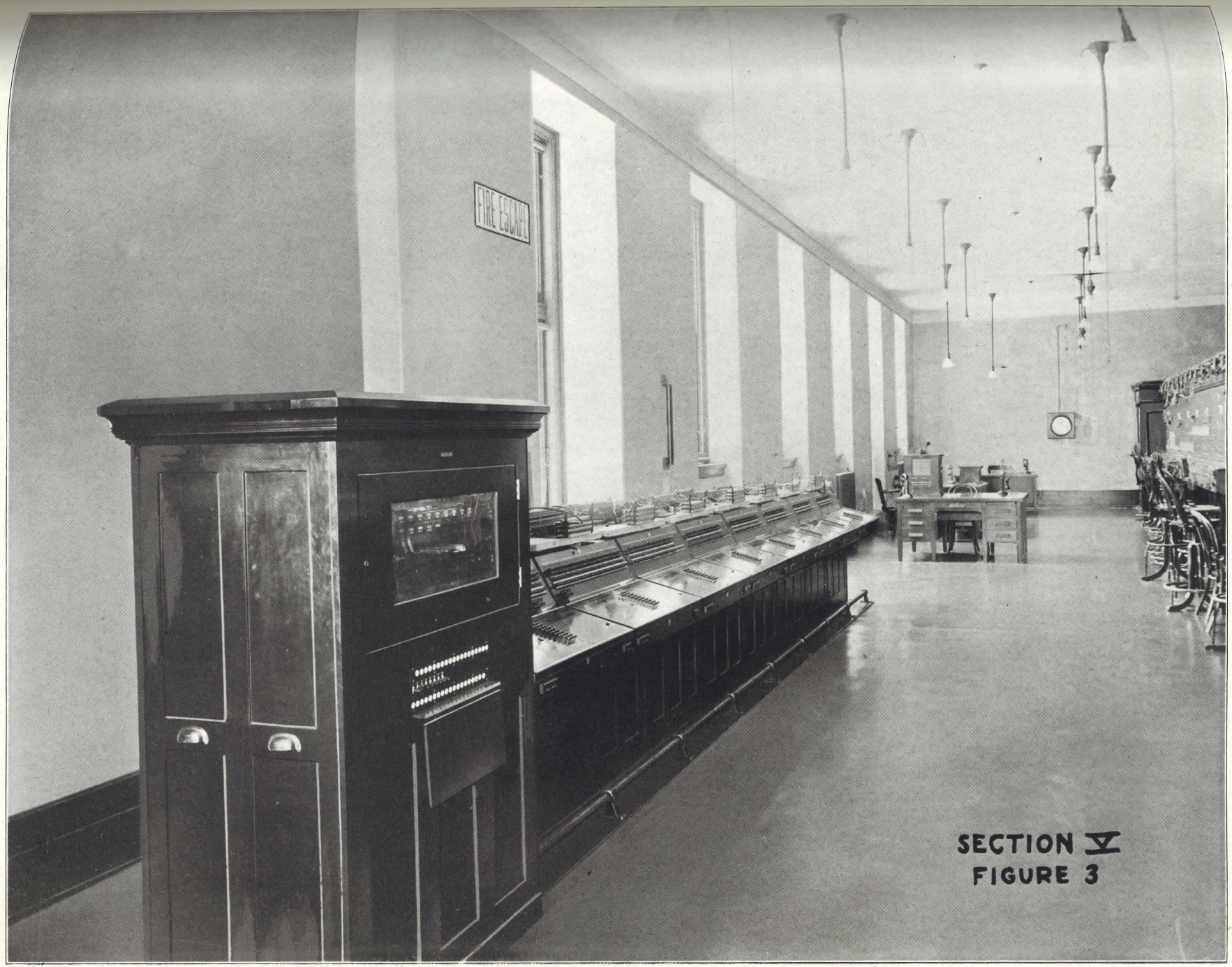
FULL MECHANICAL EQUIPMENT
ARRANGEMENT OF CORDLESS "B" OPERATOR'S KEYSHELF



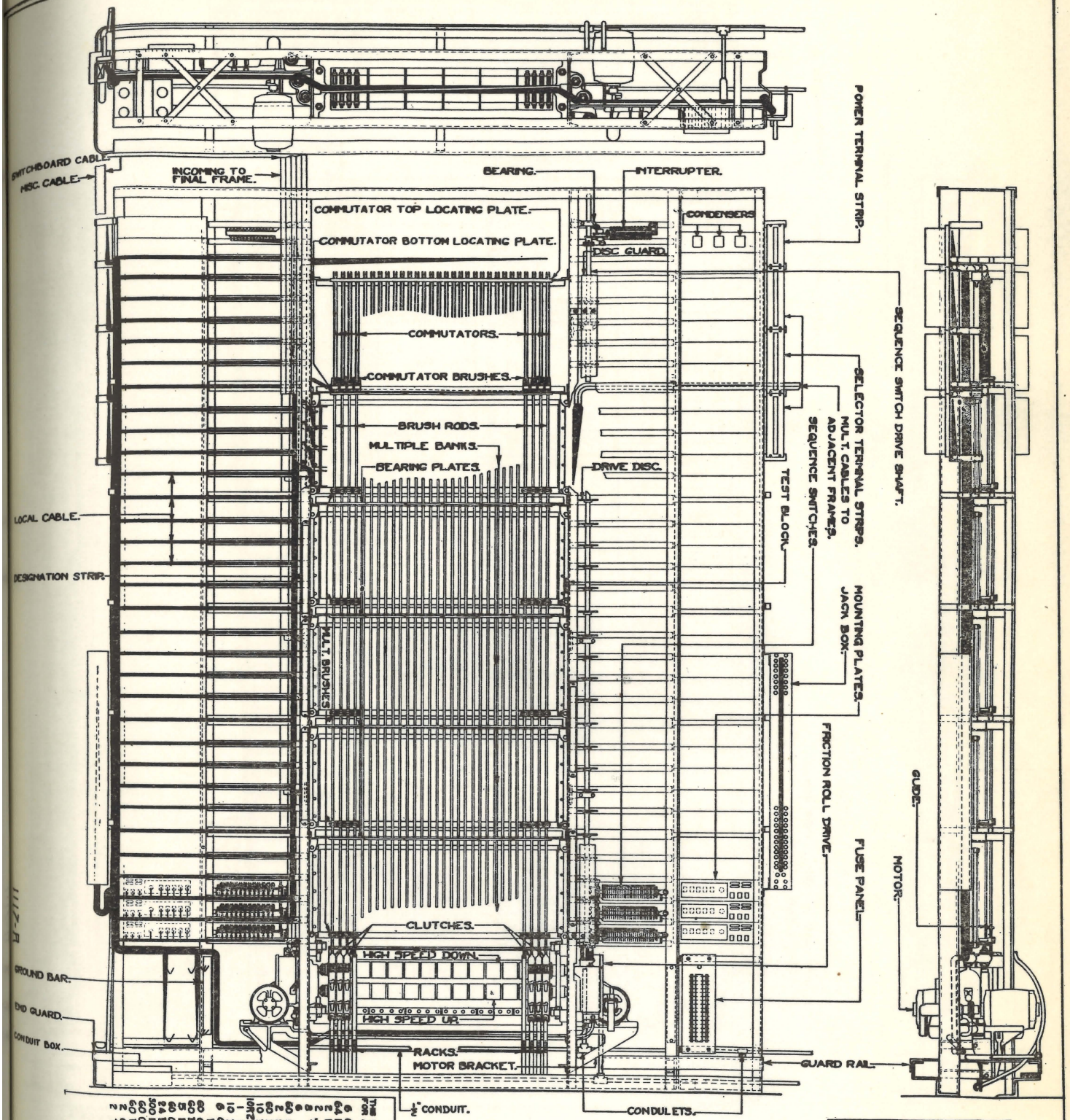




SECTION V
FIGURE 2



SECTION V
FIGURE 3



THIS FRAME IS ARRANGED FOR APPARATUS AS LISTED.

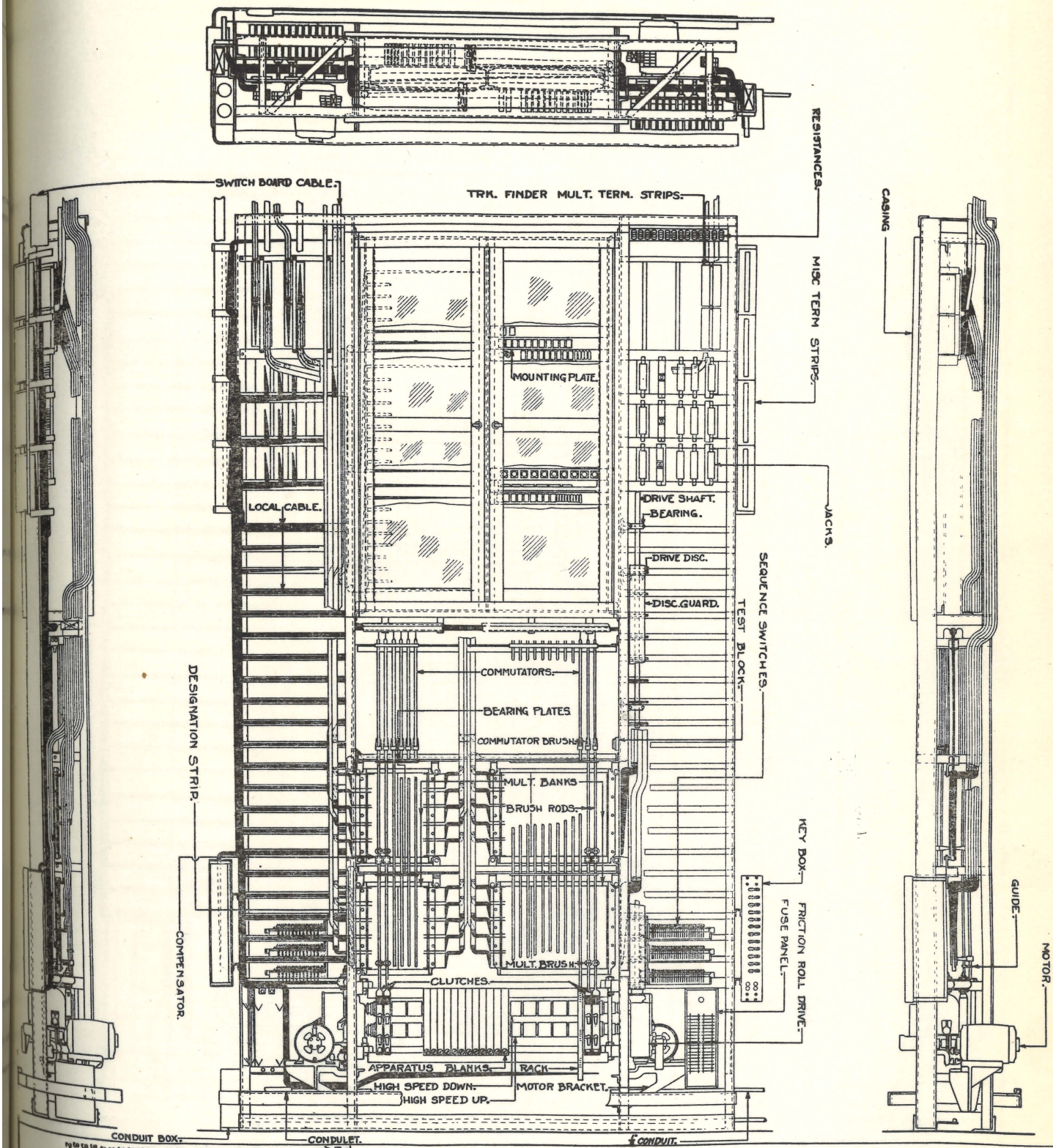
6	CONDENSORS.
64	MOUNTING PLATES.
2	FUSE PANELS.
2	JACK BOXES.
2	TERMINAL STRIPS.
6	INTERRUPTERS.
60	SEQUENCE SWITCHES.
2	SEQ. SW. SHAFTS.
60	DRIVE DISCS.
10	DRIVE BRACKETS.
1	10" MOTOR BRACKETS.
1	FRICTION ROLL DRIVE.
10	DESIGNATION STRIPS.
6	COMMUTATOR LOCATING PLATES. 10" & 12"
60	COMMUTATORS.
60	BRUSH RODS.
5	MULTIPLE BANKS
60	COMMUTATOR BRUSHES
24	BEARING PLATES.
500	MULTIPLE BRUSHES.
60	CLUTCHES.
60	RACKS.
2	GROUND BAR.
2	TEST BLOCKS.

SECTION V
FIG 4

INFORMATION DRAWING
INCOMING SEL. FRAME.
FULL MECHANICAL
POWER DRIVEN SYSTEM.

ES-225170

Western Electric Co., Inc., N.Y. Sole Mfr.



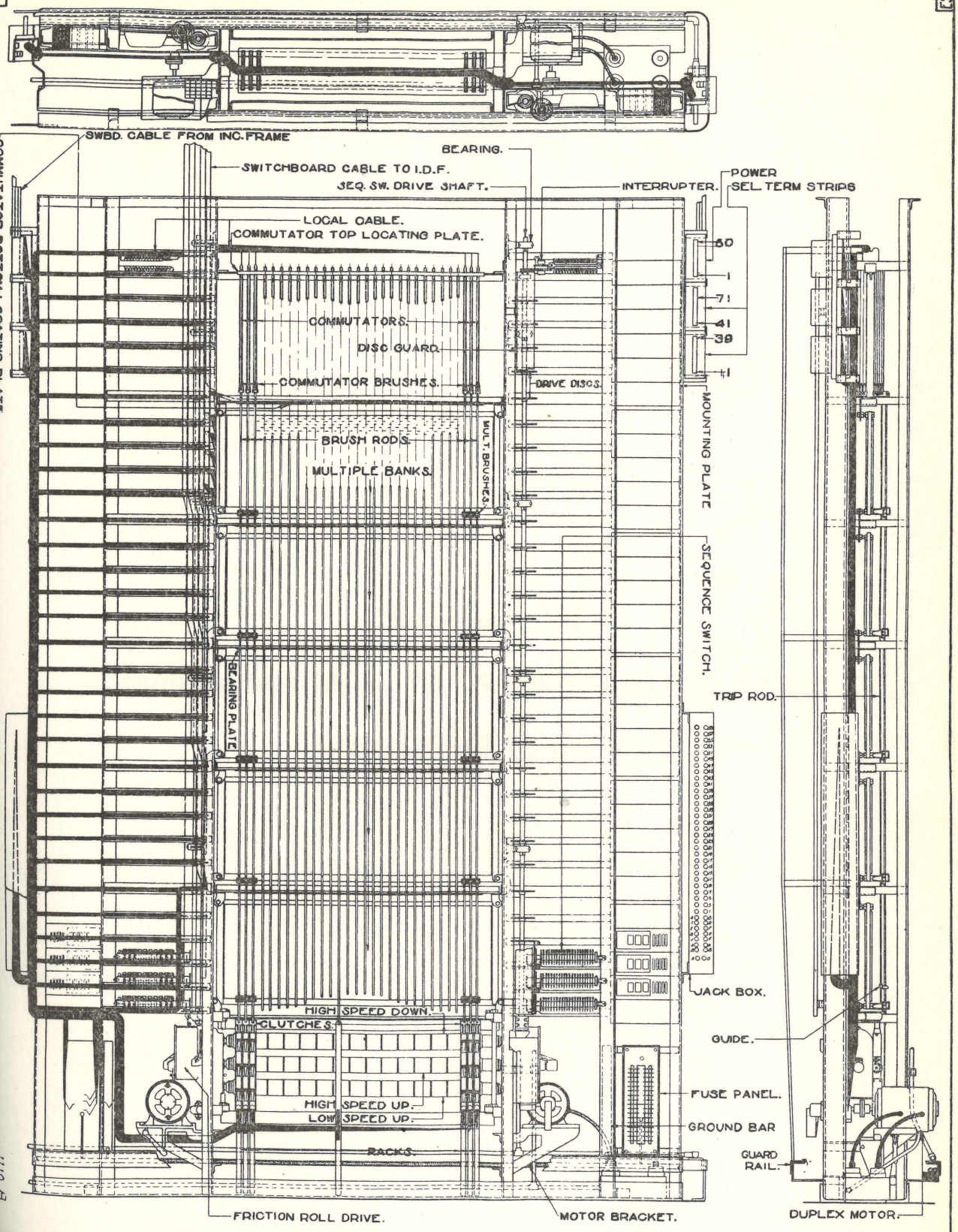
THIS FRAME IS ARRANGED FOR THE FOLLOWING APPARATUS.

28	MOUNTING PLATES.
2	FUSE PANELS.
2	KEY BOXES.
14	TERM. STRIPS.
40	SEQUENCE SWITCHES
40	SEQ. SW. DRIVE SHAFTS.
8	DRIVE DISCS.
8	BEARINGS.
1 OR 2	MOTOR BRACKETS
1	FRICTION ROLL STRIPS.
5	BEARING PLATES.
5	COMMUTATOR LOCATING PLATES.
96	COMMUTATORS.
96	BRUSH RODS.
4	MULTIPLE BANKS.
96	COMMUTATOR BRUSHES
72	MULTIPLE BRUSHES.
36	CLUTCHES.
36	RACKS.
2	GROUND BARS.
2	TEST BLOCKS.
36	COMPENSATORS.
50	PLATES.
20	APPARATUS BLANKS.

SECTION V
FIG 5

INFORMATION DRAWING.
"B" S.A.S. SELECTOR FRAME.
FULL MECHANICAL.
POWER DRIVEN SYSTEM.
ES-225169
WESTERN ELECTRIC CO INC.

CS-22563



CS-22563

1110 A

THIS FRAME IS ARRANGED FOR APPARATUS AS LISTED BELOW.

1 FRICTION ROLL
2 DRIVE
2 SEQUENCE SWITCH
1 MOTOR BRACKET.
2 WIRING DUCTS AS
1 SINGLE FRAME.
60 BRUSH RODS.
30 COMM. BRUSHES
30 MULT. BRUSHES
60 GUIDES.
60 CLUTCHES
60 COMMUTATORS.
65 MULTIPLE BANKS.
6 RACKS.
6 INTERRUPTERS.
6 TERM. STRIPS.
6 SEQ. SW.
60 MOUNTING PLTS.
1 KEYING STRIP.
2 FUSE PANELS.
2 JACK BOXES.

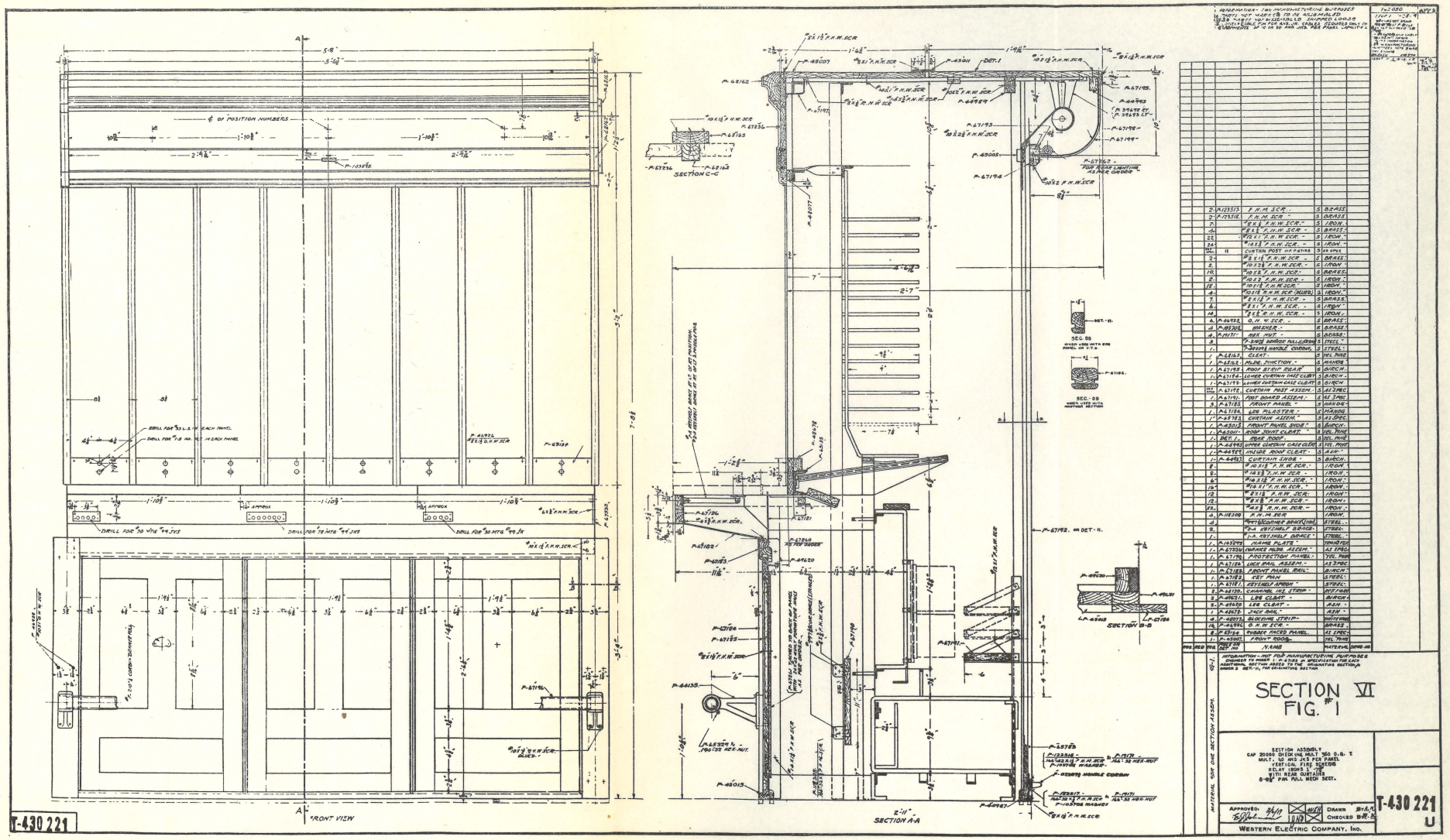
INFORMATION DRAWING
FINAL SELECTOR FRAME
FULL MECHANICAL
POWER DRIVEN SYSTEM

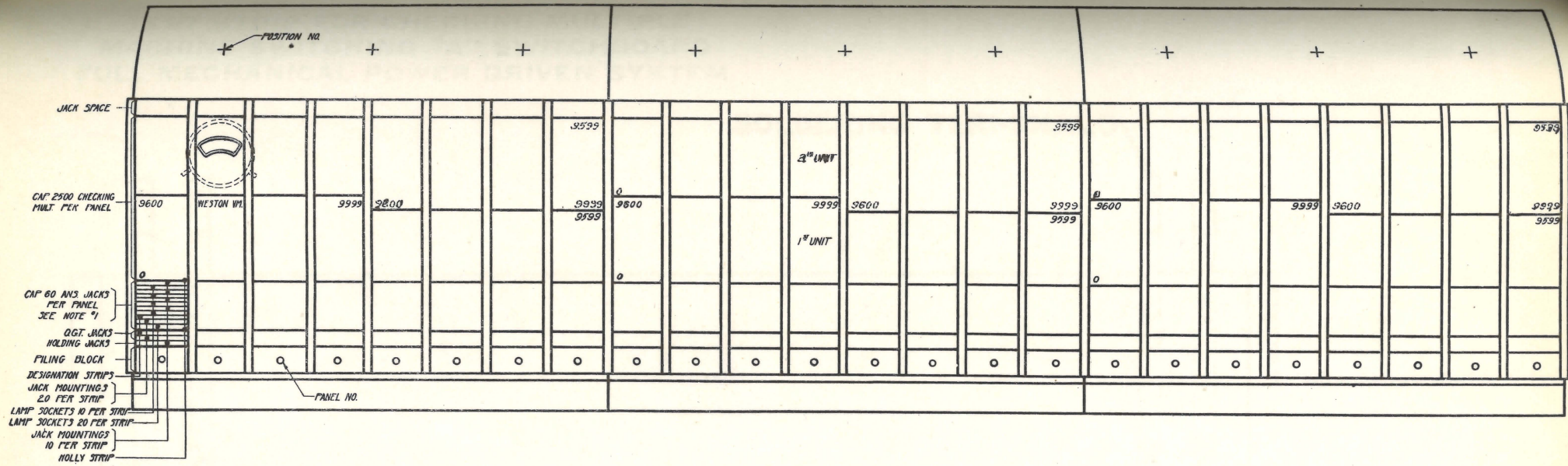
CS-22563

SECTION V
FIG 6

Section VI

Machine Switching "A" Switchboard and Associated Frames and Equipment


FRONT VIEW
SECTION A-A
SECTION C-C
SECTION D-D
SECTION VI
FIG. 1
T-430 221
T-430 221 U
WESTERN ELECTRIC COMPANY, INC.



SECTION NUMBER	1			2			3			4			5			6			7			8			9			10		
POSITION NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PANEL NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24						
CHECKING MULT.	0 - 9999			0 - 9999			0 - 9999																							
ANS. JACKS	40	40	40	40	40	40	40																							
MULT. ANS. JACKS		20	20	20	20	20		20	20	20	20	20		20	20	20	20	20		20	20	20	20	20						
O.G.T. MULT.	20	20	20				20	20	20				20	20	20				20	20	20									
HOLDING JACKS		10		10			10			10			10			10			10											

OUTGOING TRUNK MULTIPLE JACK ASSIGNMENTS

PANELS	NO. OF JACKS	JACK NOS.	CLASS OF LINE
1-7-13-19	10	0 - 9	O.G.T. TO MANUAL TANDEM
2-8-14-20	20	0 - 19	O.G.T. TO 2 NUMBER RECORDER
3-9-15-21	10	0 - 9	O.G.T. TO L.D. RECORDER
3-9-15-21	10	10 - 19	MULTIPLE JACKS "B" POSITION INCOMING
1-7-13-19	5	10 - 14	SPARE
	5	15 - 19	MULTIPLE JACKS DESK LINES
2-4-7-10 12-19-18-20 23	10	0 - 9	HOLDING AND GROUNDING JACKS

ANSWERING JACK ASSIGNMENTS

PANELS	NO. OF JACKS	JACK NOS.	CLASS OF LINE	MULTIPLED IN PANELS
1	40	20-59	INTERCEPTING TRUNKS	
2-3-4-6-7	40	20-59	INTERCEPTING TRUNKS	
5-8	20	20-39	INTERCEPTING TRUNKS	
5	3	40-42	"B" SUPERVISOR'S LINES	
5	5	43-47	UNASSIGNED	
5	2	48-49	BLANK INCOMING MULT. TRUNKS	
5	5	50-54	BLANK FINAL MULT. TRUNKS	
5	5	55-59	COMPLAINT TRUNKS	
8	5	40-44	MAN. SUBS. LINES	
8	3	45-49	DESK LINES	
8	2	50-51	VERIFYING TRUNKS	
8	8	52-59	UNASSIGNED	
			SEMI-MECH. SUBS. LINES	
			RURAL LINES	
2	20	0-19	AB TOLL TRUNKS	8-14-20
3	20	0-19	AB TOLL TRUNKS	9-15-21
4	10	0-9	AB TOLL TRUNKS	10-16-22
4	10	10-19	DIAL ZERO TRUNKS	10-16-22
5	20	0-19	DIAL ZERO TRUNKS	11-17-23
6	20	0-19	DIAL ZERO TRUNKS	12-18-24
			DIAL INCOMING TRUNKS	
			DIAL DISTRICT TRUNKS	

SECTION VI
FIGURE #2

NOTES:-

1- WHERE CHECKING MULTIPLE FOR 2 UNITS IS TO BE PROVIDED FOR, THE ANSWERING JACK SPACE SHALL BE RESTRICTED TO 5 STRIPS OF JACKS ONE WITH DESIGNATION STRIP AND 5 STRIPS OF LAMP SOCKETS AND THE O.G.T. MULTIPLE TO 1 STRIP OF JACKS WITH DESIGNATION STRIP AND 1 STRIP OF HOLDING JACKS WITHOUT DESIGNATION STRIP.

2- WHEN 2ND UNIT OF CHECKING MULTIPLE WILL ULTIMATELY BE INSTALLED COMPLETE FOR 10,000 LINES NUMBERING MUST BE AS SHOWN BY DOTTED FIGURES.

ARRANGEMENT
OF
FRONT EQUIPMENT
MACHINE SWITCHING 'A' SWITCHBOARD
FULL MECHANICAL POWER DRIVEN
MACHINE SWITCHING SYSTEM

APPROVED: [illegible]

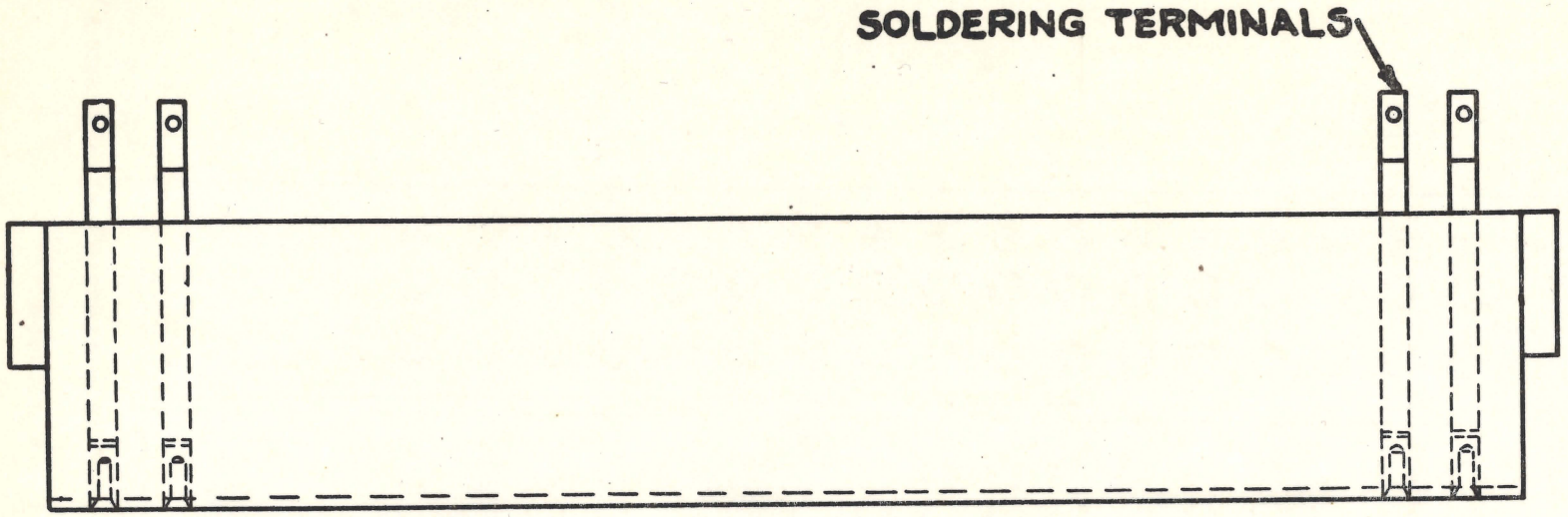
DRAWN BY J.B.K.
CHECKED BY W.M.M.

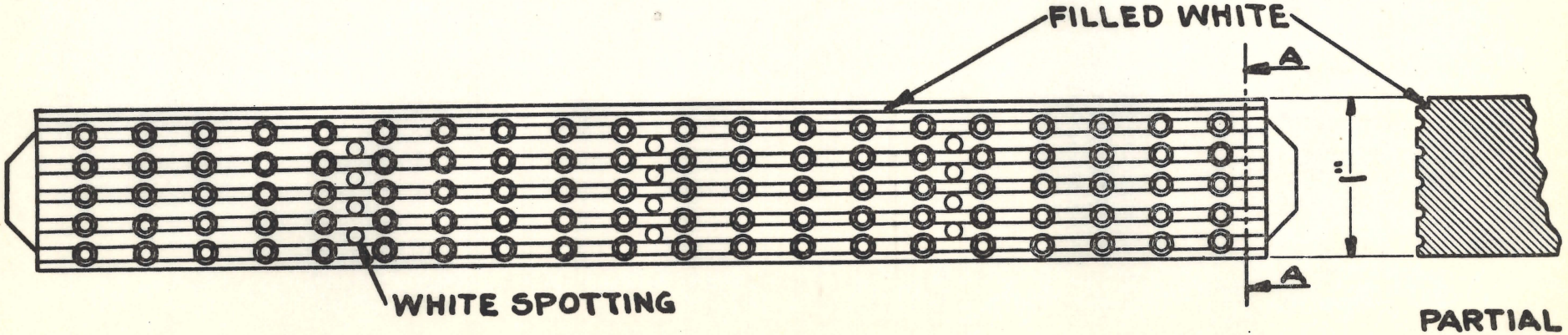
WESTERN ELECTRIC CO., INC., N.Y. ENG DEPT.

ES-225214

R

TEST STRIP FOR CHECKING MULTIPLE
MACHINE SWITCHING "A" SWITCHBOARD
FULL MECHANICAL POWER DRIVEN SYSTEM



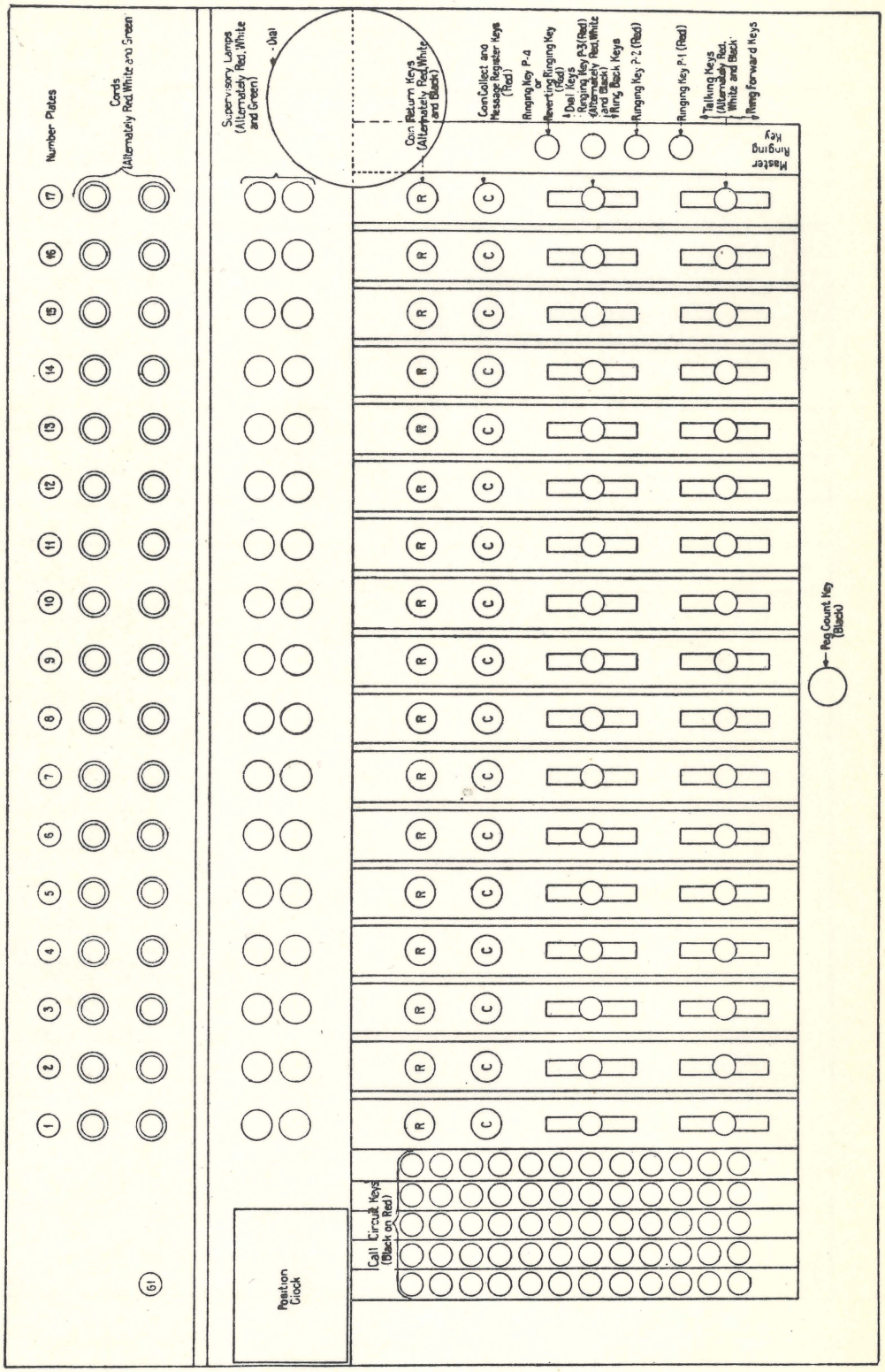


PARTIAL
SECTION Ä-Ä

SEC. VI FIG. 3

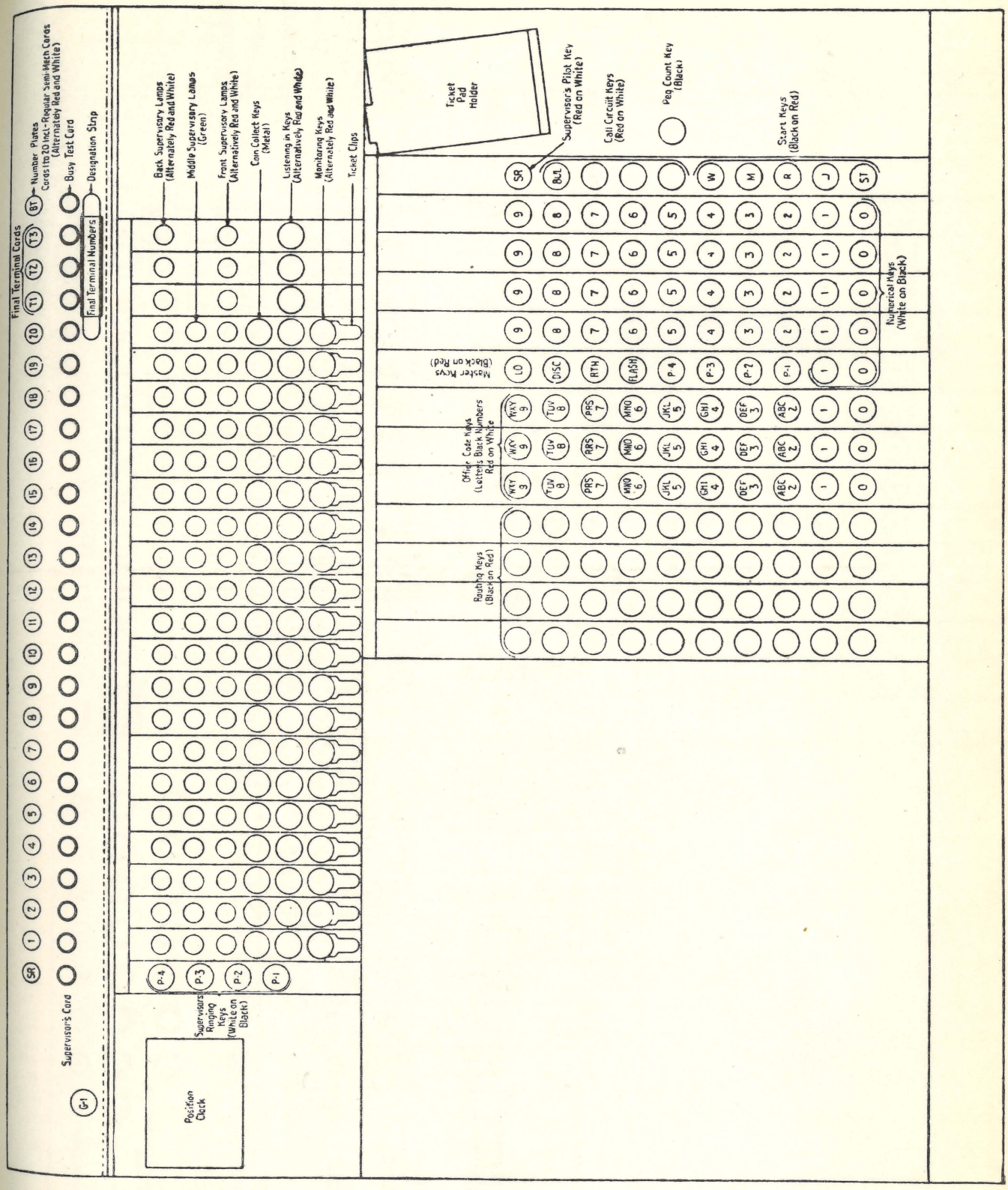
TEST STRIP FOR CHECKING MULTIPLE
MACHINE SWITCHING Ä SWITCHBOARD

SCALE FULL SIZE



"A" operator's Keyshelf with Manual Cords, Dial, and Dialing Keys.

Section VI Figure No.4



A Operator's Keyshelf with Semi-mechanical Keyset

Section VI Figure No.5

A Operator's Combination Manual and Semi-mechanical Keyshelf

Section VI Figure No.6

Section VII

Miscellaneous Frames and Desks

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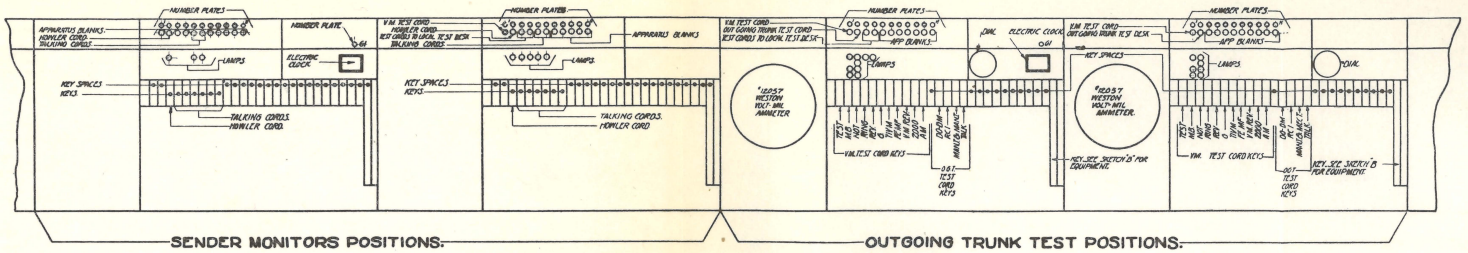


APPARATUS.

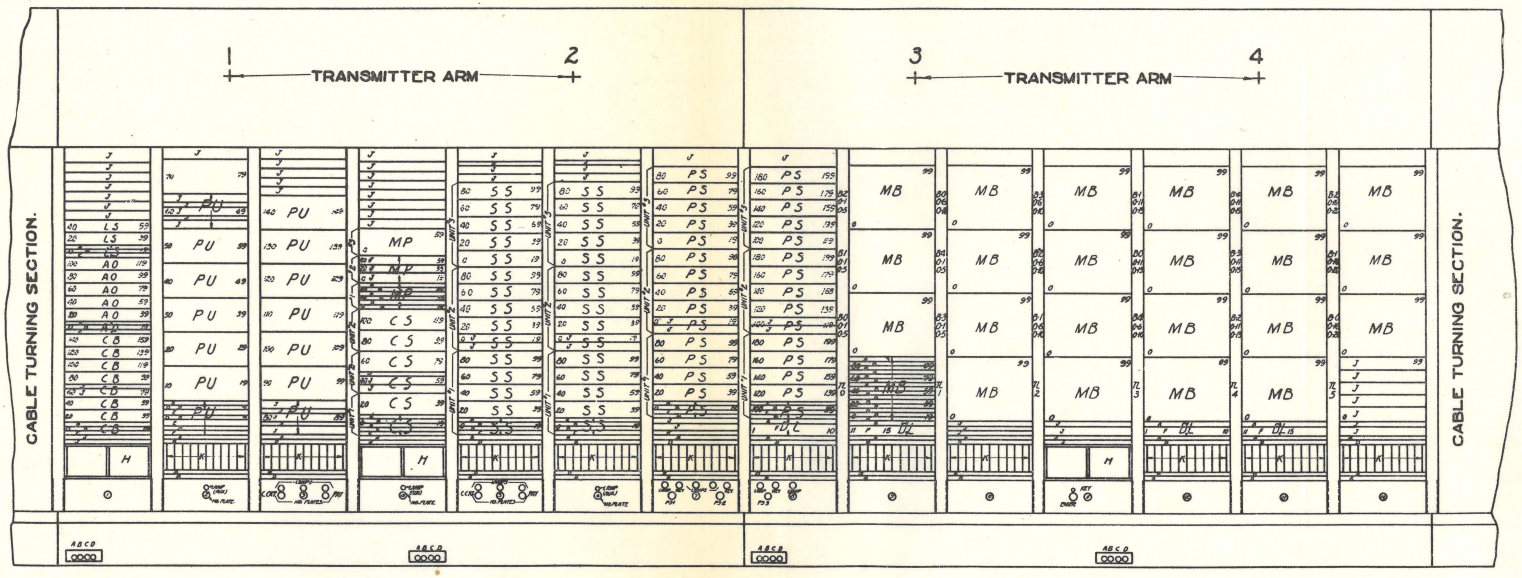
A-DESIGNATION STRIP.
B-JACKS 20 PER STRIP.
C-LAMPS 20 PER STRIP.
D-LAMPS 10 PER STRIP.
E-JACKS 10 PER STRIP.
F-KEYS 10 PER STRIP.
G-KEYS 20 PER STRIP.
H-PIGEON HOLES.
J-JACK SPACES.
K-KEYS (FOR EQUIPMENT SEE SKETCH 'A')

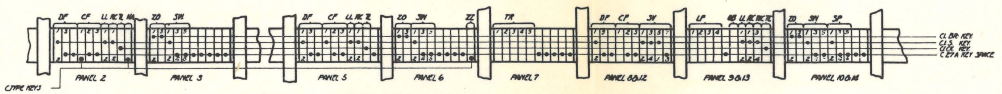
CIRCUITS.

AO-'A' OPERATORS SENDER ALARMS.
CB-CORDLESS SENDER ALARMS.
CG-COIN SENDER ALARMS.
CF-LINE TO INCOMING AND CORDLESS 'B' SENDER FRAMES.
DF-LINE TO DISTRICT SUPERVISORS SENDER AND TRANSLATOR FRAMES.
DL-TALKING LINE TO OTHER DESKS.
LF-TALKING LINE TO ROYAL FRAMES.
L-TALKING LINE TO LOCAL SWITCHES.
LS-LOCAL SENDER ALARMS.
MB-OUTGOING TRUNK TEST AND MAKE BUSY JACKS
MP-MASTER PILOT ALARMS.
NA-NIGHT ALARM
OB-TALKING LINES TO OPTIONAL BOARD.
PS-PERMANENT SIGNAL TALKING LINES.
PU-TEST AND PLUGGING UP LINES.
RC-TALKING LINES TO REPAIR CLERK AND ASSISTANT CHIEF OPERATOR.
SP-LINES TO LOUD SPEAKING TELEPHONES.
SS-SUBSCRIBERS SENDER ALARMS
SV-TALKING LINES TO SUPERVISORS.
SW-TALKING LINES TO SWITCHMAN.
TL-TELEPHONE CIRCUIT SECONDARY CUT-OFF AND RINGING KEY.
TR-TRUNK LINES FROM DISTRICT MULTIPLE TO REPAIR CLERK DESK.
WC-TALKING LINES TO COMPLAINT DESK AND LOCAL TEST DESK.
ZO-TALKING LINES TO ZERO OPERATOR.
ZZ-TELEPHONE TRANSFER KEY (POS 2 TO POS 3)

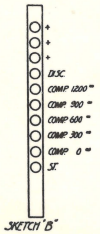
NOTES.

1-DOTTED NUMBERING DENOTES WIRING ONLY.
2-SOLID NUMBERING DENOTES WIRING AND EQUIPMENT
3-LIKE LETTERS DENOTE LIKE EQUIPMENT





SKETCH 'A' SHOWING EQUIPMENT OF KEY ENDED LINES.



SKETCH 'B'

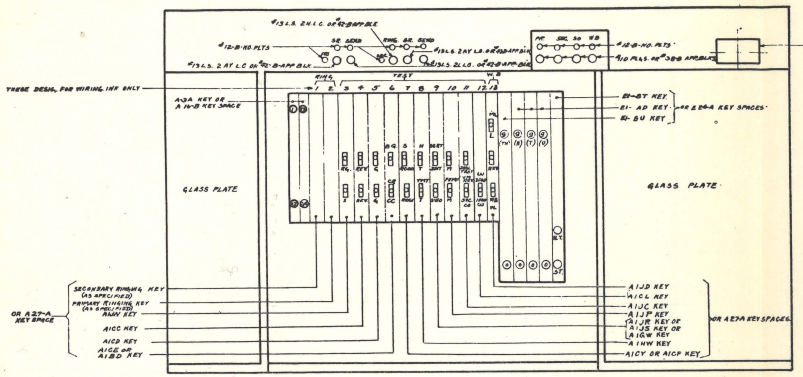
SECTION VII
FIG 1

INFORMATION DRAWING.
FRONT EQUIPMENT.
TROUBLE DESK.
FULL MECHANICAL
POWER DRIVEN SYSTEM.

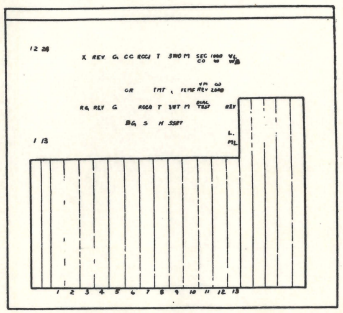
APPROVED
DRAWN BY: R.B.B.
CHECKED BY:
WESTERN ELECTRIC CO. INC. N.Y. ENG. DEPT.

ES-249114

T-500106



EQUIPMENT OF KEYSHELF (ASSEMBLY T-430471-G-1)



REVERSE SIDE OF KEYSHELF

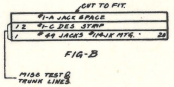


FIG. B

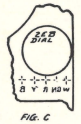
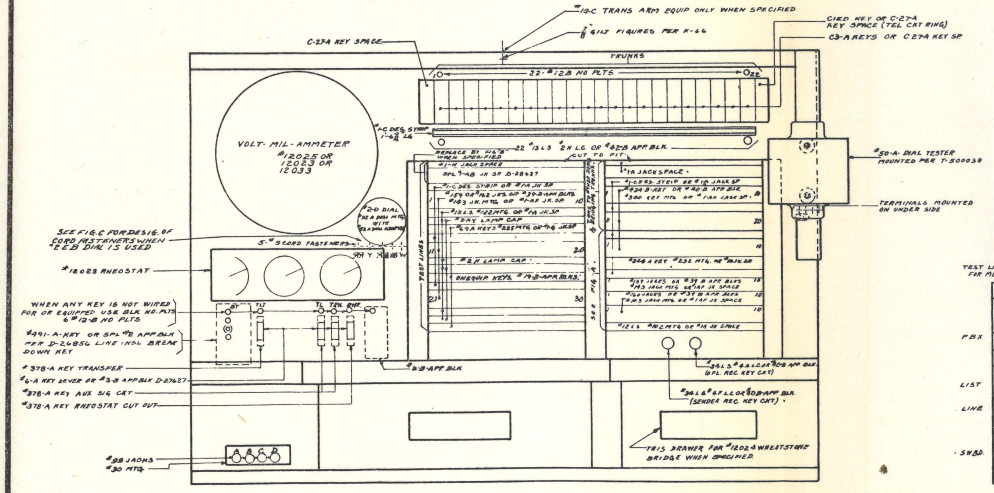


FIG. C

INFORMATION: FOR MANUFACTURING PURPOSES.
1- ALL STYLE LAMP CAPS TO BE 24V UNLESS OTHERWISE SPECIFIED
2- DESIGNATIONS ON REVERSE SIDE OF KEYSHELF SHALL AGREE WITH THE ENGRAVING ON THE KEY TOPS EXCEPT IN THE CASE OF THE CALL CAT. KEYS AND SHALL BE SHOWN ONLY FOR KEYS WHICH ARE EQUIPPED OR WIRED FOR. DESIGNATIONS TO BE BLACK BEDDER STAMPED CHARACTERS
3- LEADS TO WHEATSTONE BRIDGE TO BE BROUGHT INSIDE THE DRAWER AND LEFT 3'0" LG. AND UNFORMED.

240937 APP D
ISSUE 1 12-7-20
FIG. C WAS NOT SHOWN IN EQUIP OF KEY SHELF (A) KEY W AS W (B) KEY W ASW (B) KEY W (A) KEY W AS (A) KEY W AS (B) KEY. IN EQUIP OF FRONT PANEL & LOCK RAIL FOR "E-D DIAL DESIGNATIONS OF CORD FASTENERS WERE SHOWN INVERTED, & OVER FASTENERS. NOTE REFERRING TO FIG. C WAS NOT SHOWN. VOLT MIL-AMMETER WAS CODED 12085.
240937 457630
ISSUE 2 3-2-22 ADDED W 24V.



EQUIPMENT OF FRONT PANEL AND LOCK RAIL (ASSEMBLY T-430470-G-1)

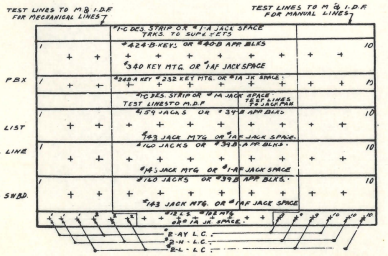


FIG. A

INFORMATION: NOT FOR MANUFACTURING PURPOSES.

SECTION VIII
FIG. #2

PANEL & KEYSHELF EQUIPMENT
LOCAL TEST DESK
FULL MECHANICAL POWER DRIVEN SYSTEM

APPROVED 12-11-20
DRAWN BY W.T.M.
CHECKED BY W.M.M.

WESTERN ELECTRIC COMPANY, INC.

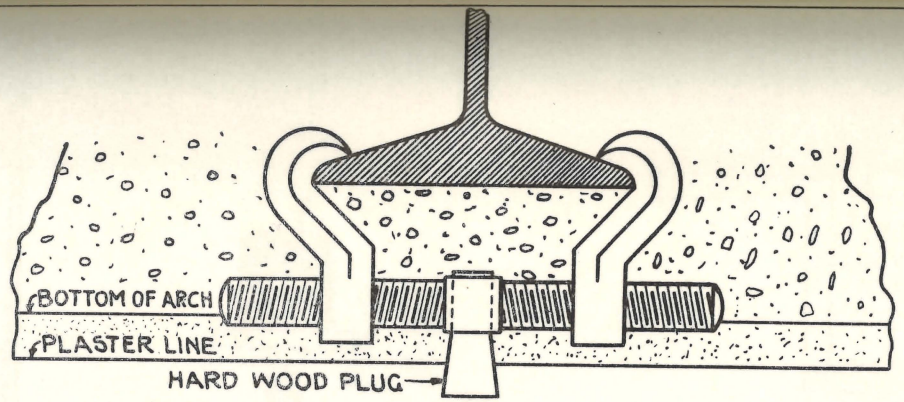
T-500106
O

T-500106

Section VIII

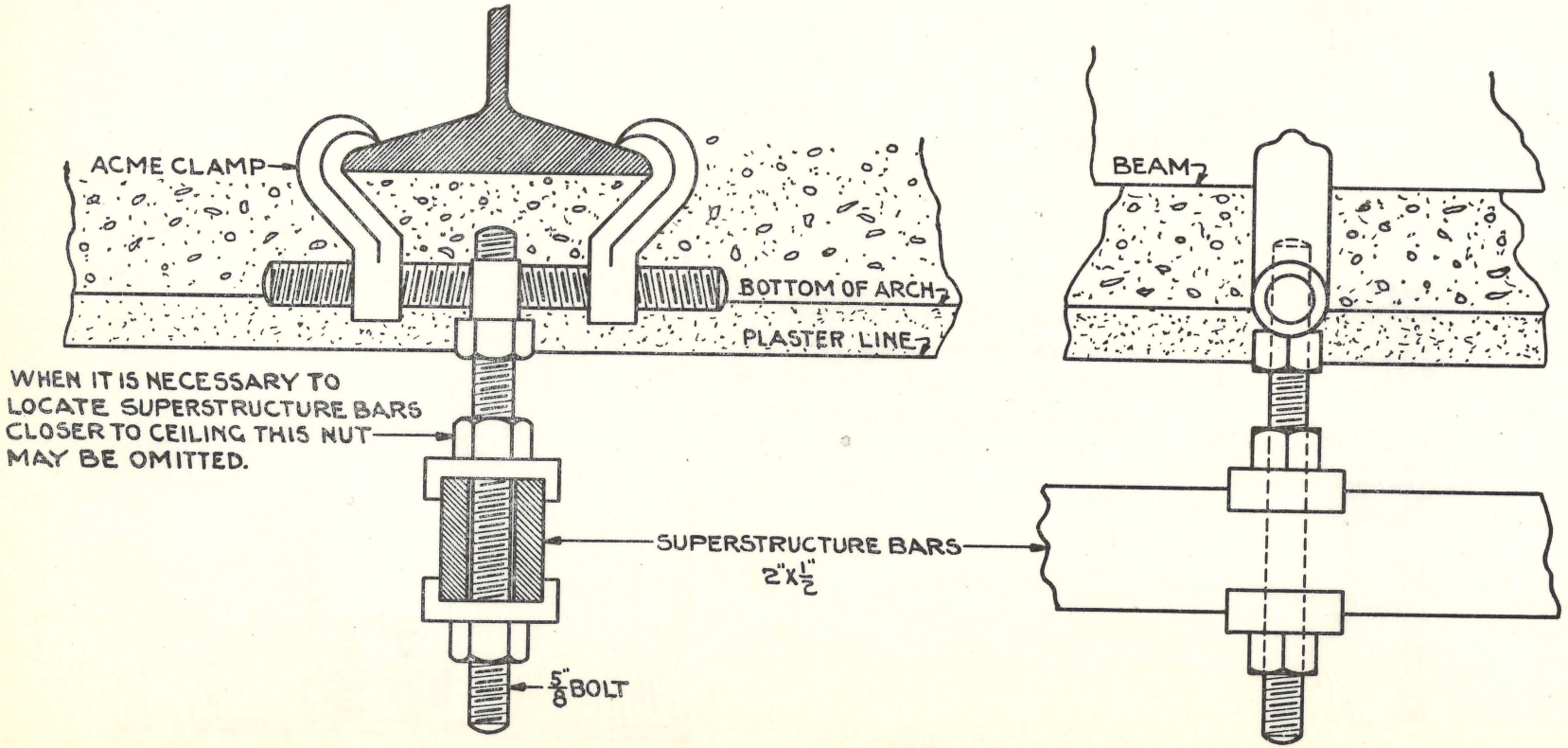
Building and Floor Plan Layouts

HARD WOOD PLUG TO FILL THREADED HOLE IN CLAMP BOLT DURING PLASTERING OPERATION AND TO INDICATE POSITION OF CLAMP IN FINISHED CEILING.

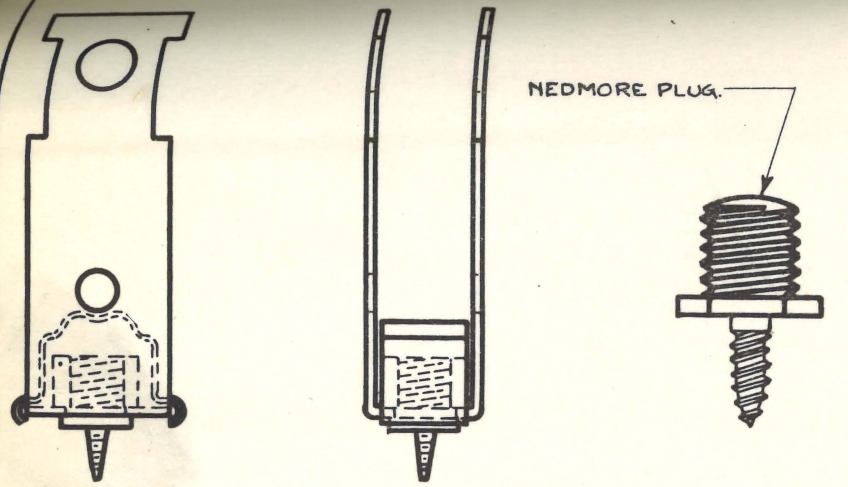


INFORMATION DRAWING
SUPPORT OF SUPERSTRUCTURE
BY MEANS OF ACME BEAM CLAMPS
IN TELEPHONE BUILDINGS OF
STEEL CONSTRUCTION

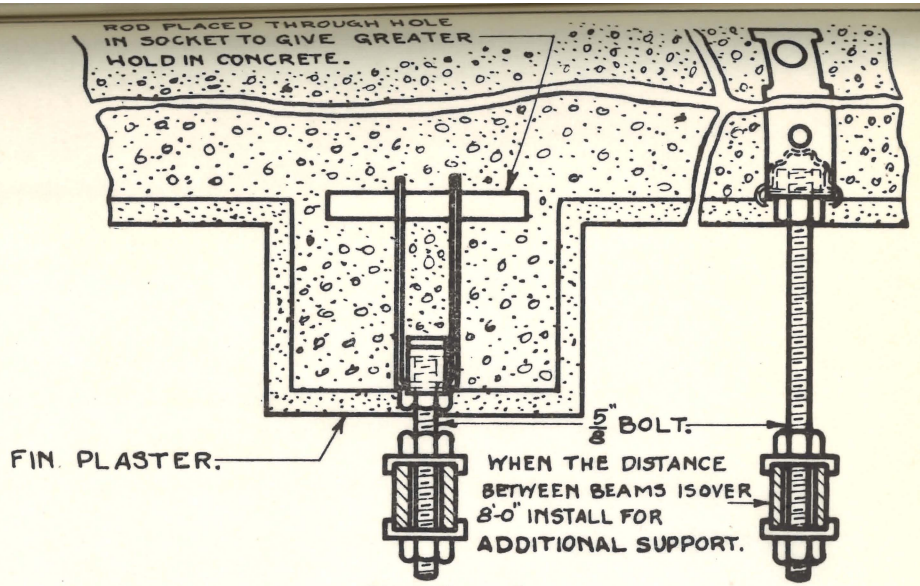
SKETCH - 1
ACME BEAM CLAMP



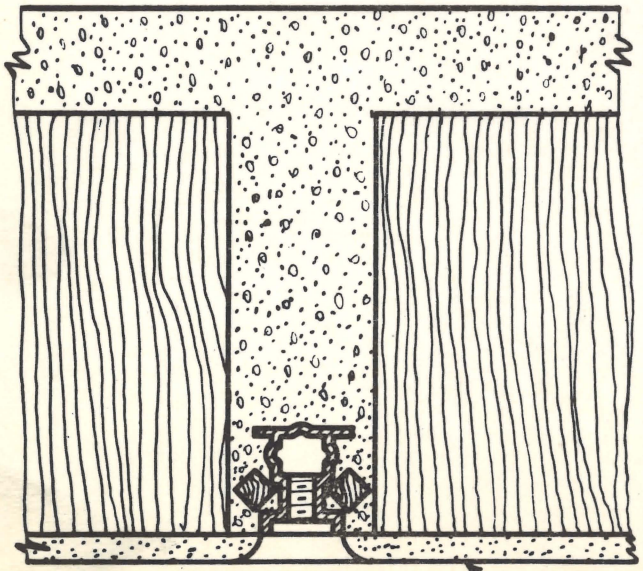
SKETCH - 2
METHOD OF SUPPORTING SUPERSTRUCTURE BARS FROM ACME BEAM CLAMPS



SKETCH 1.
KNEAS SOCKET.

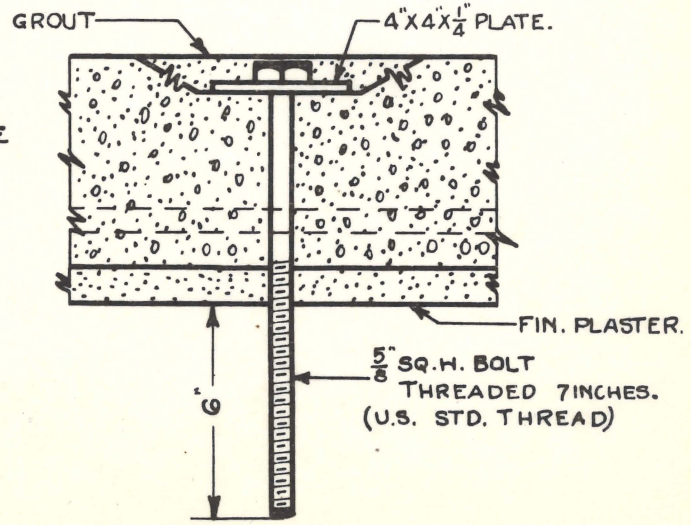


SKETCH 2.
METHOD OF SUPPORTING SUPERSTRUCTURE BARS.
FROM KNEAS SOCKET.



SKETCH 3.
USE OF SPECIAL INSERT PLACED TO TAKE ADVANTAGE
OF REINFORCEMENT RODS.

INFORMATION DRAWING.
SUPPORT OF SUPERSTRUCTURE
BY MEANS OF KNEAS SOCKETS
IN TELEPHONE BUILDINGS OF
REINFORCED CONCRETE
CONSTRUCTION.



SKETCH 4.
METHOD OF PROVIDING SUPPORT IN
CONCRETE CEILINGS FOR SUPERSTRUCTURE
WHEN INSERTS WERE NOT ORIGINALY PROVIDED FOR.

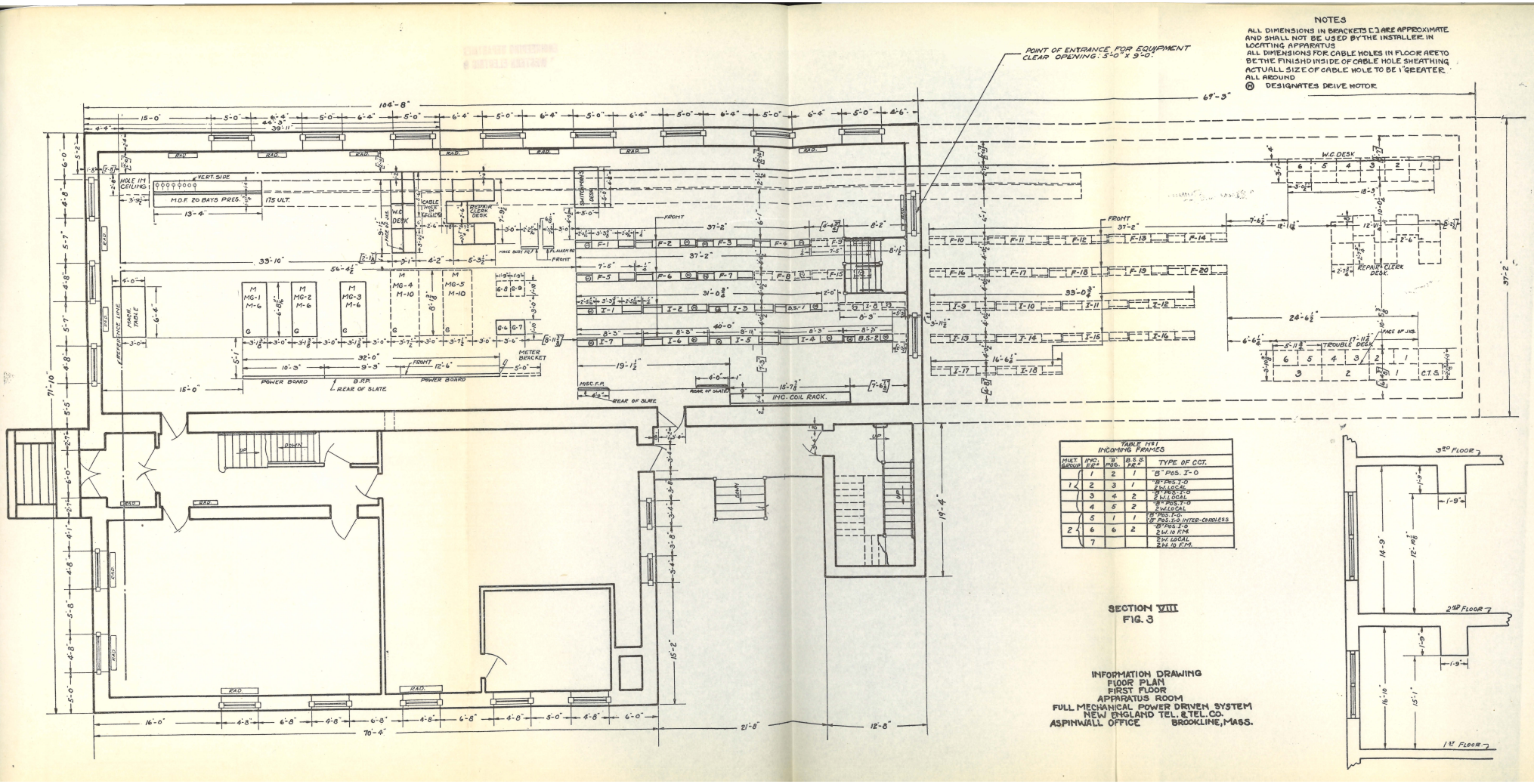


TABLE No. 1
INCOMING FRAMES

MULT. GROUP	INC. F.R.#	"B" POS.	B.S.S. F.R.#	TYPE OF CCT.
1	1	2	1	"B" POS. I-0
	2	3	1	"B" POS. I-0 2 W. LOCAL
	3	4	2	"B" POS. I-0 2 W. LOCAL
	4	5	2	"B" POS. I-0 2 W. LOCAL
	5	1	1	"B" POS. I-0 "B" POS. I-0 INTER-CARDLESS
2	6	6	2	"B" POS. I-0 2 W. 10 F.M.
	7			2 W. LOCAL 2 M. 10 F.M.

SECTION VIII
FIG. 3

INFORMATION DRAWING
FLOOR PLAN
FIRST FLOOR
APPARATUS ROOM
FULL MECHANICAL POWER DRIVEN SYSTEM
NEW ENGLAND TEL. & TEL. CO.
ASPINWALL OFFICE BROOKLINE, MASS.

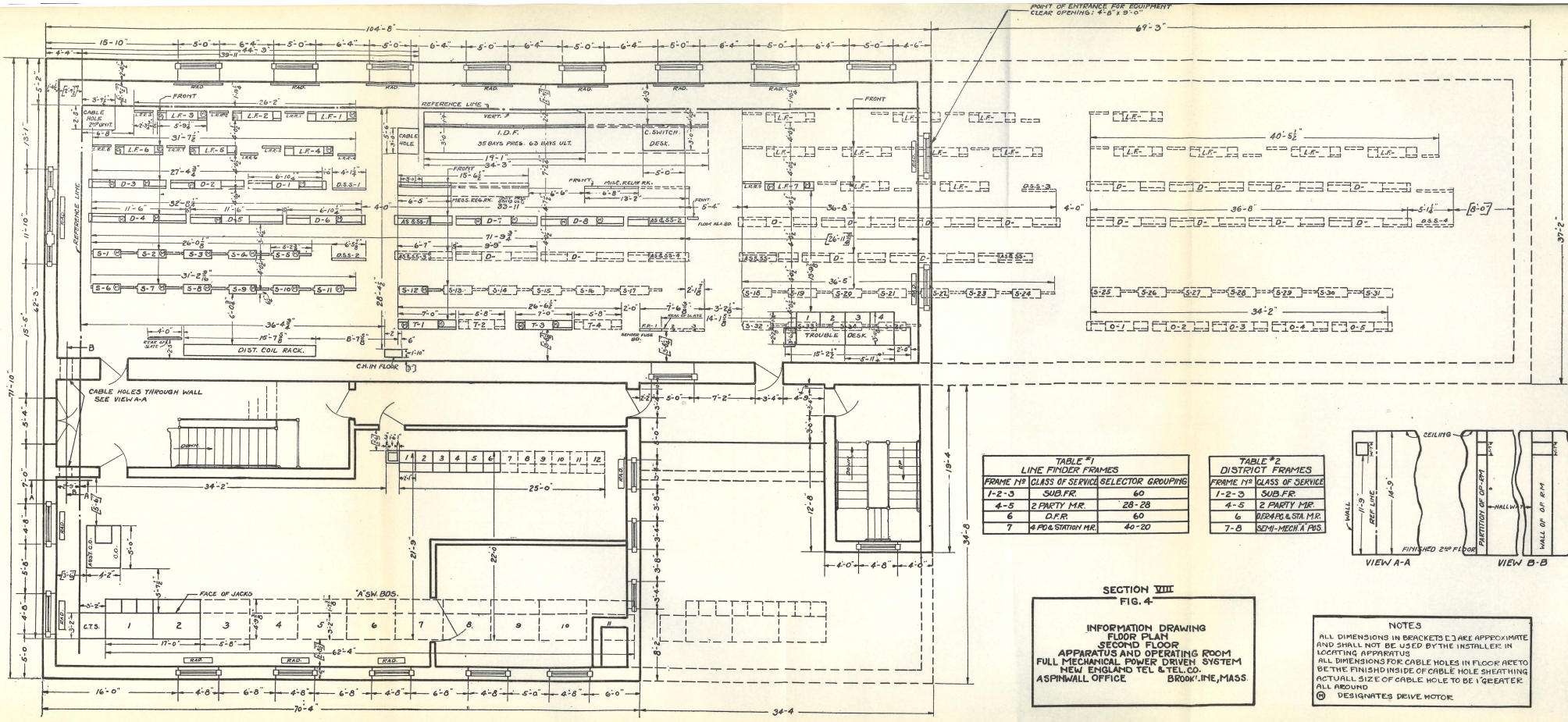


TABLE #1
LINE FINDER FRAMES

FRAME Nº	CLASS OF SERVICE	SELECTOR GROUPING
1-2-3	SUB.FR.	60
4-5	2 PARTY M.R.	28-28
6	O.F.R.	60
7	4 PO & STATION MR.	40-20

TABLE #2
DISTRICT FRAMES

FRAME Nº	CLASS OF SERVICE
1-2-3	SUB.FR.
4-5	2 PARTY MR.
6	DEPART. & STA. M.R.
7-8	SEMI-MECH'L "A" FMS.

SECTION VIII
FIG. 4

INFORMATION DRAWING
FLOOR PLAN
SECOND FLOOR
APPARATUS AND OPERATING ROOM
FULL MECHANICAL POWER DRIVEN SYSTEM
NEW ENGLAND TEL & TEL. CO.
ASPINWALL OFFICE BROOKLINE, MASS.

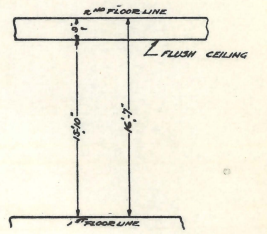
NOTES
ALL DIMENSIONS IN BRACKETS [ ] ARE APPROXIMATE AND SHALL NOT BE USED BY THE INSTALLER IN LOCATING APPARATUS
ALL DIMENSIONS FOR CABLE HOLES IN FLOOR ARE TO BE THE FINISHED INSIDE OF CABLE HOLE SHEATHING ACTUALL SIZE OF CABLE HOLE TO BE 1" GREATER ALL AROUND
(M) DESIGNATES DRIVE MOTOR

INFORMATION FOR M'F'G. PURPOSES:-

1. ALL DIM'S. IN BRACKETS [ ] ARE APPROX AND SHALL NOT BE USED BY THE INSTALLER IN LOCATING APPARATUS.
2. ALL DIM'S. FOR CABLE HOLES IN FLOOR ARE TO THE FINISHED INSIDE OF CABLE SHEATHING; ACTUAL SIZE OF CABLE HOLE IN FLOOR TO BE 1" LARGER ALL AROUND
3. FOR GROUPING AND CLASS OF SERVICE OF INCOMING FRAMES SEE TABLE #1.
4. Ⓓ DESIGNATES DRIVE IN TOE

SECTION VIII
FIGURE 5

FLOOR PLAN
FIRST FLOOR
APPARATUS- & TERMINAL RM.
FULL MECHANICAL POWER DRIVEN SYSTEM
CENTRAL UNION TEL. CO.
BROADWAY OFFICE.- TOLEDO, OHIO.
SCALE 1/8" = 1'-0"



TYPICAL SECTION SHOWING CEILING HEIGHT

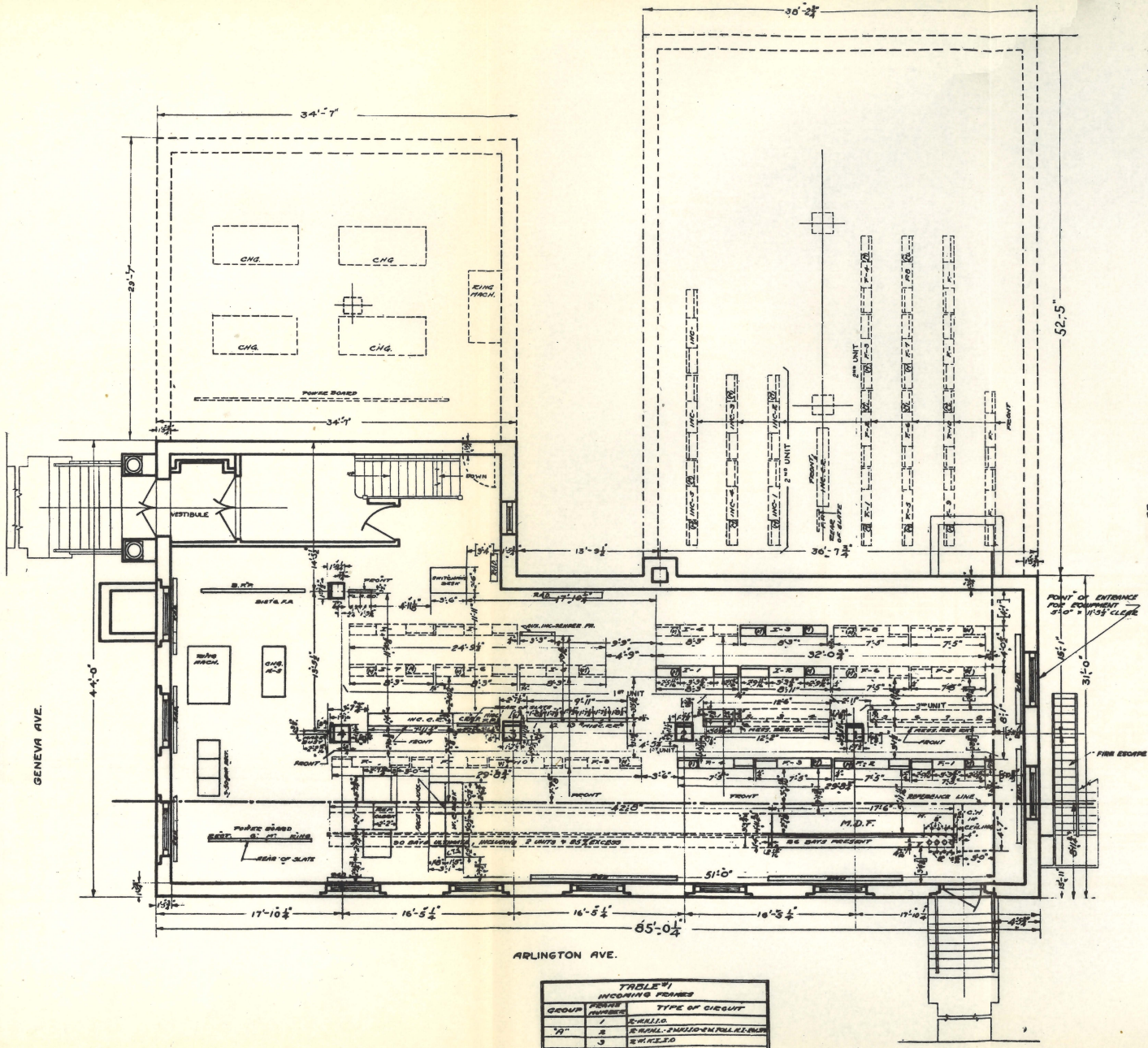


TABLE #1
INCOMING FRAMES

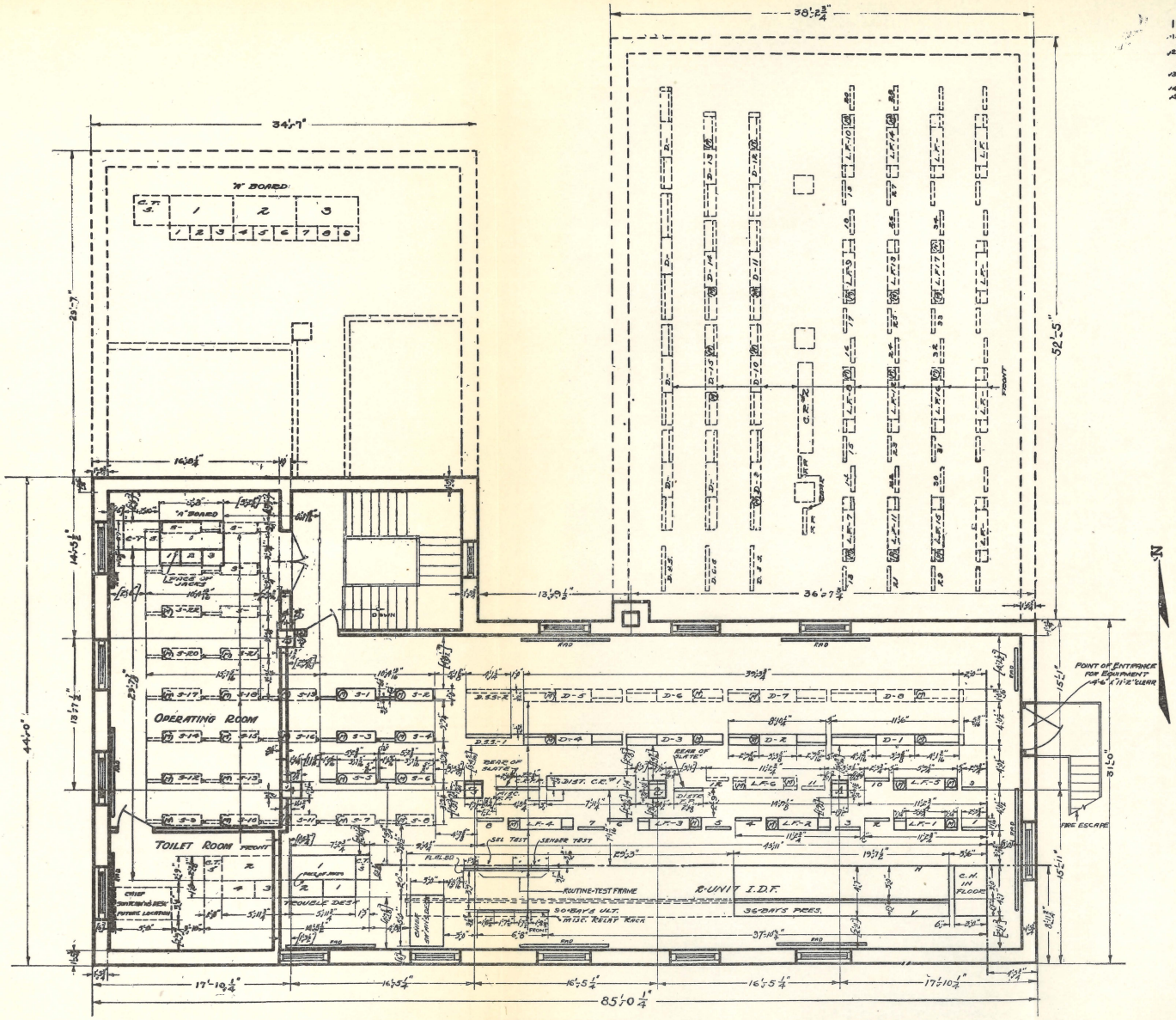
GROUP	FRAME NUMBER	TYPE OF CIRCUIT
"A"	1	[illegible]
	2	[illegible]
	3	[illegible]

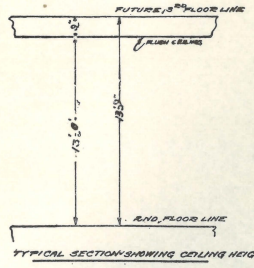
INFORMATION FOR M'F'G. PURPOSES:-

1. ALL DIMS. IN BRACKETS [ ] ARE APPROXIMATE AND SHALL NOT BE USED BY THE INSTALLER IN LOCATING APPARATUS
2. ALL DIM'S. FOR CABLE HOLES IN FLOOR ARE TO THE FINISHED INSIDE OF CABLE HOLE SHEATHING; ACTUAL SIZE OF CABLE HOLES IN FLOOR TO BE 1" GREATER ALL AROUND
3. ⓓ DESIGNATES DRIVE MOTORS
4. FOR CLASS OF SERVICE OF DISTRICT FRS. SEE TABLE 1A. FOR CLASS OF SERVICE OF LINE FINDER FRS SEE TABLE 1B

SECTION VIII
FIGURE 6

FLOOR PLAN
SECOND FLOOR
APPARATUS & OPERATING RM.
FULL MECHANICAL POWER DRIVEN SYSTEM
CENTRAL UNION TEL. CO.
BROADWAY OFFICE - TOLEDO, OHIO
SCALE - 3/16" = 1'-0"

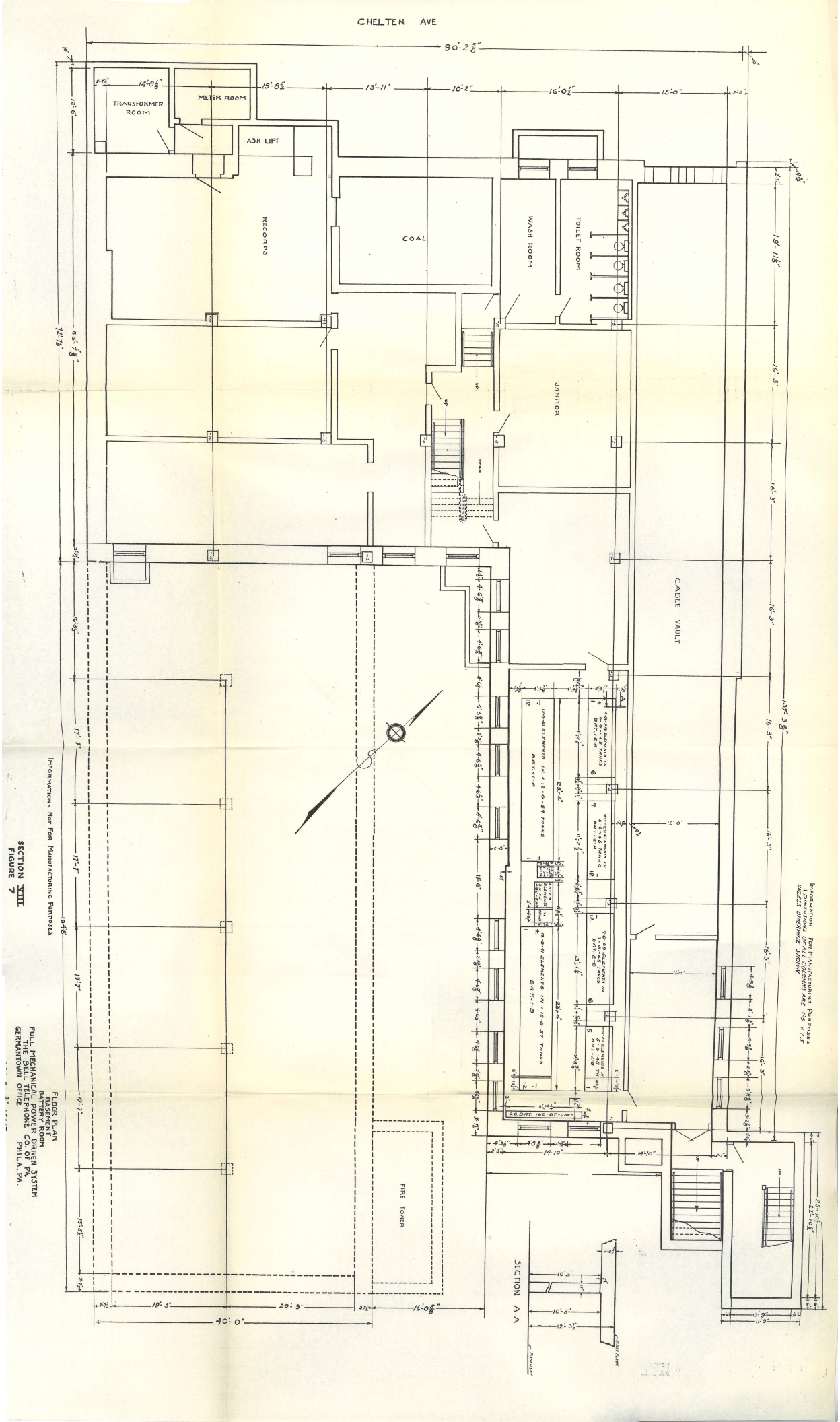




TYPICAL SECTION SHOWING CEILING HEIGHTS

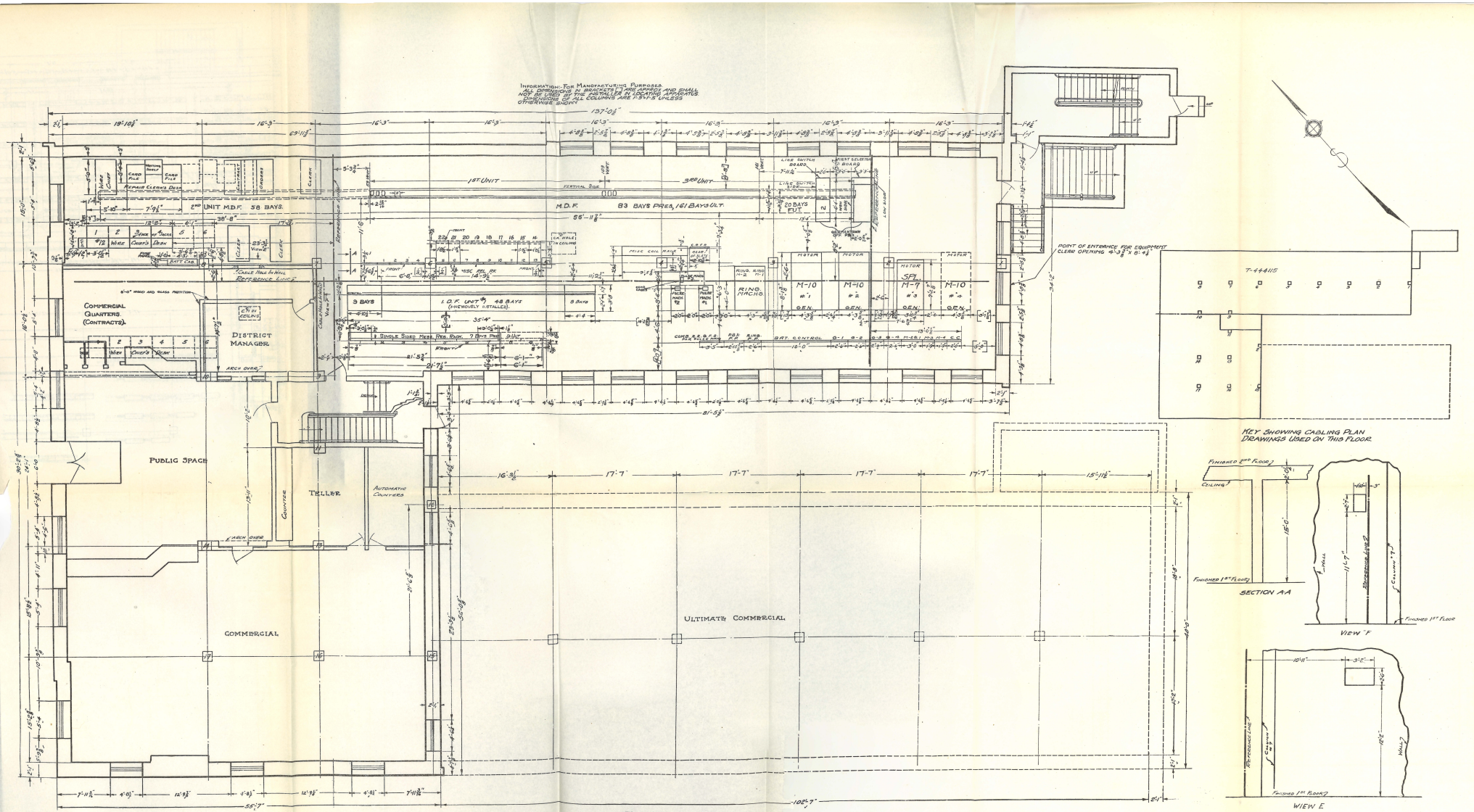
TABLE 1A DISTRICT FRAMES		
FRAME NO.	CLASS OF SERVICE	
1	MESS. RATE 2 PARTY	
2-3-4	FLAT RATE	

TABLE 1B LINE FINDER FRAMES		
FRAME NO.	CLASS OF SERVICE	SELECTOR GROUPING
1	MESS. RATE-2 PARTY	20-20
2-3-4-5	FLAT RATE	20-20



FLOOR PLAN
BASEMENT ROOM
FULL MECHANICAL POWER DRIVEN SYSTEM
THE BELL TELEPHONE CO OF PA.
GERMANTOWN OFFICE
PHILA. PA.

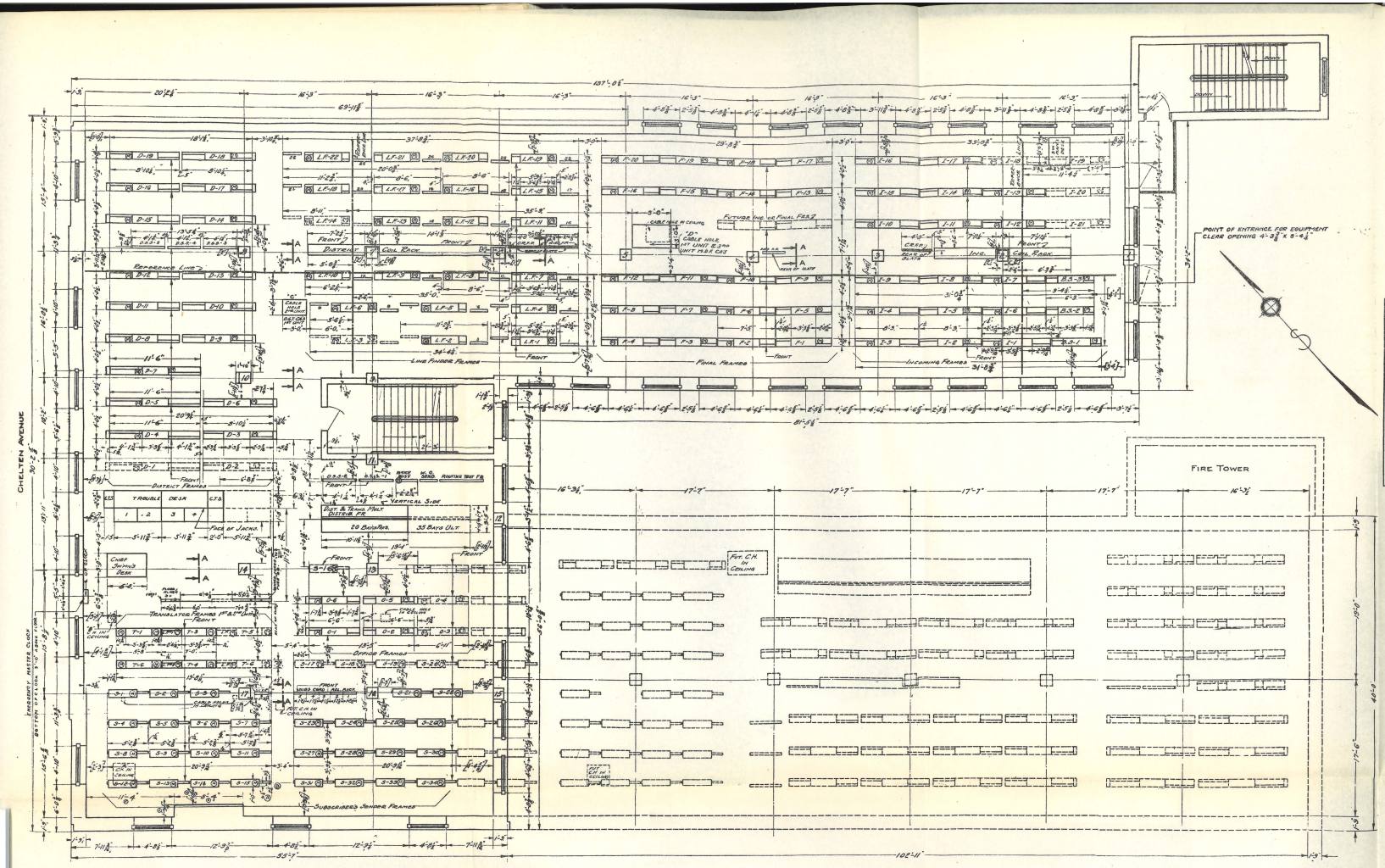
SECTION VIII
FIGURE 7



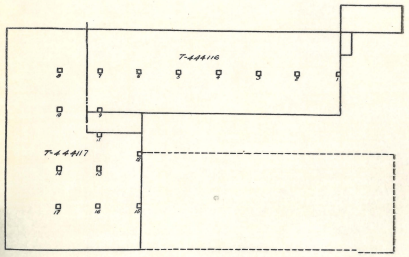
SECTION VIII
FIGURE 8

FLOOR PLAN
FIRST FLOOR
POWER AND TERMINAL ROOM
FULL MECHANICAL POWER DRIVEN SYSTEM
THE BELL TELEPHONE CO. OF PA.
GERMANTOWN OFFICE. PHILA, PA.

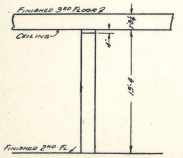
SCALE:- 1/4" = 1 FT.



INFORMATION - FOR MANUFACTURING PURPOSES.
1. ALL DIMENSIONS IN BRACKETS [ ] ARE APPROXIMATE AND SHALL NOT BE USED BY THE INSTALLER IN LOCATING EQUIPMENT.
2. ALL DIMENSIONS FOR CABLE HOLE IN FLOOR ARE TO THE FINISHED INSIDE OF CABLE HOLE SLEEVING. ACTUAL SIZE OF CABLE HOLE IN FLOOR TO BE 1" GREATER ALL AROUND.
3. DISTANCES OF COLUMNS ARE APPROXIMATE.
4. FOR GROUNDING AND CLASS OF SERVICE OF INCOMING TRUNKS SEE TABLE #1.
5. FOR CLASS OF SERVICE OF DISTRICT FRAMES SEE TABLE #2.
6. FOR CLASS OF SERVICE OF LINE FINDER FRAMES SEE TABLE #3.
7. (M) INDICATES MOTORS.



KEY SHOWING CABLING PLAN DRAWINGS USED ON THIS FLOOR.



SECTION "A-A"

TABLE #1 INCOMING FRAMES				ANNUNCIATOR NO.
ONE WAY	TWO WAY	CLASS OF SERVICE	TYPE OF RELAY	TRK. NO.
	1.	LONG DISTANCE	2 W.	1.
	2.	TOLL OPERATOR	2 W.	2.
	3.	MANUAL	2 W.	3.
	4.	MANUAL	2 W.	4.
A	5.	MANUAL	2 W.	5.
	6.	MANUAL	2 W.	6.
	7.	MANUAL	2 W.	7.
	8.	MANUAL	2 W.	8.
	9.	MANUAL	2 W.	9.
	10.	SPEC.	3 C.	
	11.	LOCAL	3 W.	
	12.	MECH.	2 W.	
	13.	LOCAL	3 W.	
	14.	LOCAL	3 W.	
B	15.	LOCAL	3 W.	
	16.	REV. IND.	2 W.	
	17.	REV. IND.	2 W.	

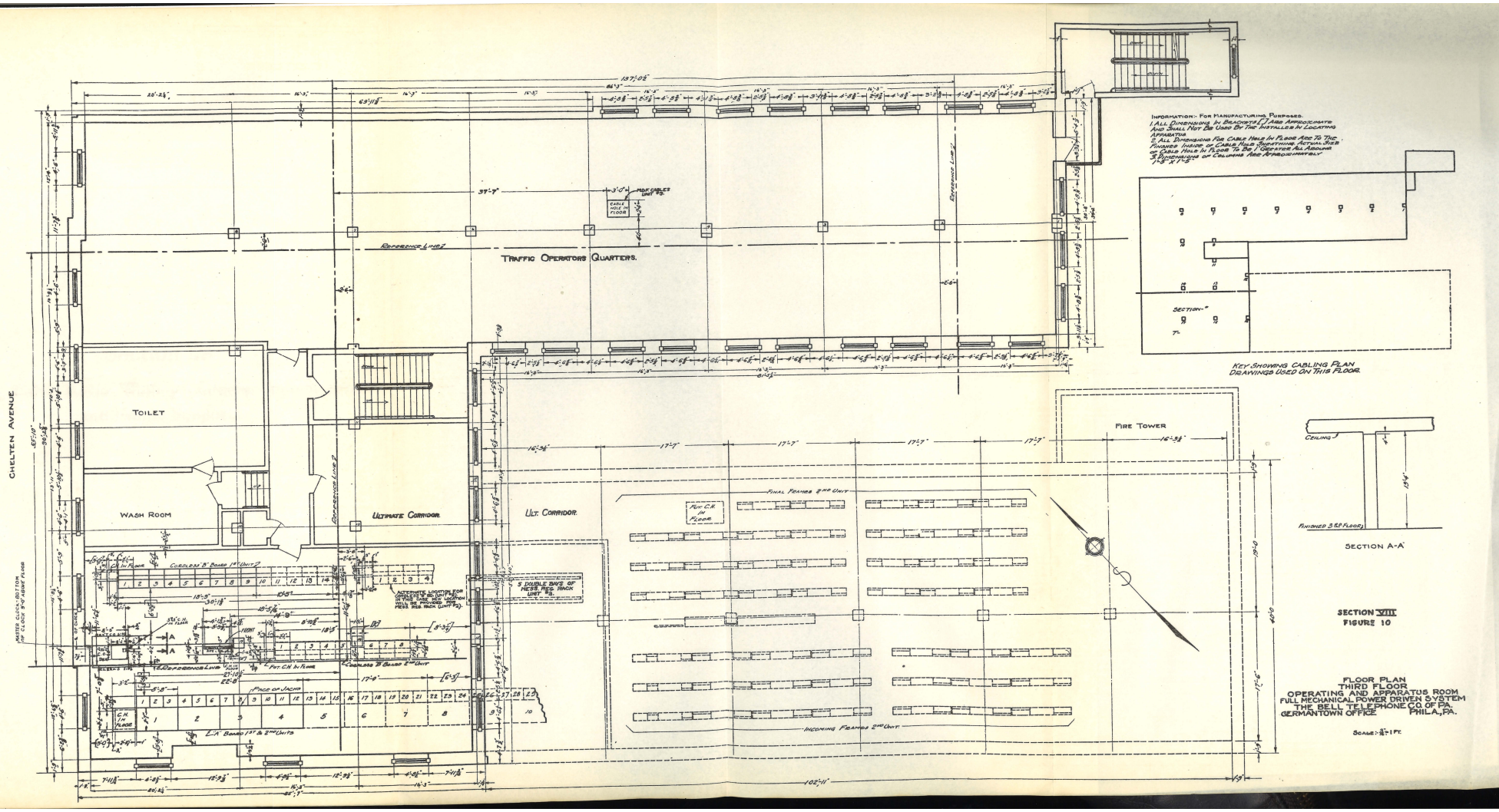
TABLE #2 DISTRICT FRAMES	
FR. NO.	CLASS OF SERVICE
3	FLAT RATE
4 & 5	2 PARTY MESSAGE RATE
6	FLAT RATE
7	2 PARTY - MESSAGE RATE
8 & 9	COIN BOX
10 & 11	FLAT RATE
12 & 13	INDIVIDUAL MESSAGE RATE
14 TO 17 INCL.	FLAT RATE
18 & 19	INDIVIDUAL MESSAGE RATE

TABLE #3 LINE FINDER FRAMES		
FR. NO.	CLASS OF SERVICE	TYPE OF FR.
12, 4, 7 & 6	2 PARTY MESSAGE RATE	28-28
7 & 8	FLAT RATE	60
9 & 10	COIN BOX	60
11 & 12	FLAT RATE	60
13	INDIVIDUAL MESSAGE RATE	40-20
15 & 16	FLAT RATE	60
17 & 18	INDIVIDUAL MESSAGE RATE	40-20
19 & 20	FLAT RATE	60
21 & 22	INDIVIDUAL MESSAGE RATE	40-20

SECTION VIII
FIGURE 9

FLOOR PLAN
SECOND FLOOR
APPARATUS ROOM
FULL MECHANICAL POWER DRIVEN SYSTEM
THE BELL TELEPHONE CO. OF PA.
GERMANTOWN OFFICE PHILA., PA.

SCALE: 1/4" = 1 FT


CHELTEN AVENUE
TRAFFIC OPERATORS QUARTERS.
TOILET
WASH ROOM
ULTIMATE CORRIDOR
ULT. CORRIDOR
REFERENCE LINE Z
REFERENCE LINE Y
FIRE TOWER
FINAL FRAMES 2ND UNIT
INCOMING FRAMES 2ND UNIT
PUT C.H. IN FLOOR
5 DOUBLE BAYS OF NEGS. REG. RACK UNIT 2.
ACCESSORIES LOCATED FOR CIRCUITS IN 3RD UNIT TO BE PROVIDED WHEN THIS CASE NEW LOCATION WILL BE PROVIDED IN NEGS. REG. RACK (UNIT 2).
L.A. BAYS 1ST & 2ND UNITS
PUT C.H. IN FLOOR
CORDLESS "A" BOARD 1ST UNIT
CORDLESS "B" BOARD 2ND UNIT
METER CLOSET BOTTOM 108" C.L. FLOOR 3'-0" ABOVE FLOOR
INFORMATION - FOR MANUFACTURING PURPOSES.
1 ALL DIMENSIONS IN BRACKETS [ ] ARE APPROXIMATE AND SHALL NOT BE USED BY THE INSTALLER IN LOCATING APPARATUS
2 ALL DIMENSIONS FOR CABLE HOLES IN FLOOR ARE TO THE FINISHED INSIDE OF CABLE HOLE SLEEVE, ACTUAL SIZE OF CABLE HOLE IN FLOOR TO BE 1" GREATER ALL AROUND
3 DIMENSIONS OF COLUMNS ARE APPROXIMATELY 1'3" x 1'3"
KEY SHOWING CABLING PLAN DRAWINGS USED ON THIS FLOOR.
CEILING
FINISHED 3 RD FLOOR
SECTION A-A
SECTION VIII
FIGURE 10
FLOOR PLAN
THIRD FLOOR
OPERATING AND APPARATUS ROOM
FULL MECHANICAL POWER DRIVEN SYSTEM
THE BELL TELEPHONE CO. OF PA.
GERMANTOWN OFFICE
PHILA., PA.
SCALE: 1/4" = 1 FT.

Section IX

Cabling, Cable Racks, Rolling Ladders, Superstructure and Frame Supports

SWITCHBOARD CABLES

CODE	SIZE		Nº OF	PAIRS		SINGLES		SP. PRS.		SP. SGLS.		INS. OF COND.	INS. OF CABLES	
	WIDTH	THICK.	COND.	Nº	GA.	Nº	GA.	Nº	GA.	Nº	GA.			
1186	.406	.313	6	3	16							D.S.&S.C.ENAM.	D.C. L.T. B&P.	
1187	.563	.344	12	6	16							" " "	" " "	
1188	.625	.375	16	8	16							" " "	" " "	
1200			12	6	19							" " "	" " "	
1216	.781	.4375	20	10	16							" " "	" " "	
6016	.8125	.427	63	20	22	20	22	1	22	1	22	D.C.ENAM.	" " "	
6024	.695	.375	43	20	22			1	22	1	22	" " "	" " "	
6035	.75	.438	53	25	22			1	22	1	22	" " "	" " "	
6050	.625	.375	33	10	22	10	22	1	22	1	22	" " "	" " "	
6060	.851	.498	75	36	22			1	22	1	22	" " "	" " "	
6062	.781	.438	63	30	22			1	22	1	22	" " "	" " "	
6066	.75	.75	103	50	22			1	22	1	22	" " "	" " "	
6069	1.125	1.125	205	100	22			2	22	1	22	" " "	" " "	
6070	.9	.48	83	40	22			1	22	1	22	" " "	" " "	
6072	.344	.344	11			10	19			1	19	" " "	" " "	
6074	.375	.375	21			20	22			1	22	" " "	" " "	
6079	.5	.313	23	10	22			1	22	1	22	" " "	" " "	
6084	1.35	.355	63	20	22	20	22	1	22	1	22	" " "	" " "	
6087	.656	.344	35	16	22			1	22	1	22	" " "	" " "	
6095	.906	.437	41	11	22	3	16 16	1	22	1	16 16	" " "	" " "	
6097	1.125	.625	132	64	22			2	22			" " "	" " "	
6098	1.125	.75	166	64	22	32	22	2	22	2	22	" " "	" " "	
6100	.719	.562	83	40	24			1	24	1	24	" " "	" " "	
6102	.875	.5	103	40	24	20	24	1	24	1	24	" " "	" " "	
6103	.625	.375	42	20	24			1	24			" " "	" " "	
6106	1.0	.563	103	40	22	20	22	1	22	1	22	" " "	" " "	
6107	1.03	.563	104	39	22	13 4	22 16	1	22	1	22	" " "	" " "	USE 6192
6115	.938	.438	64	20	19	20	22	1	19	2	22	" " "	" " "	
6116	.875	.375	43	20	19			1	19	1	19	" " "	" " "	
6117	.969	.5	83	20 20	19 22			1	19	1	19	" " "	" " "	
6119	1.069	.75	103	50	19			1	19	1	19	" " "	" " "	
6120	.775	.358	63	20	24	20	24	1	24	1	24	" " "	" " "	
6121	.75	.438	53	10 10	19 22	10	22	1	19	1	22	" " "	" " "	
6122	.438	.438	25	1 10	14 22			1	22	1	14	" " "	" " "	LEAD COVERED WHEN SPECIFIED
6123	.531	.531	45	1 20	14 22			1	22	1	14	" " "	" " "	
6124	.625	.625	65	1 30	14 22			1	22	1	14	" " "	" " "	
6125	.563	.344	23	10	19			1	19	1	19	" " "	" " "	
6126	.75	.375	43	10 10	19 22			1	19	1	19	" " "	" " "	
6127	.656	.375	33	10	19	10	22	1	19	1	22	" " "	" " "	
6128	.8125	.8125	82	40	18			1	18			" " "	" " "	
6166	.266	.266	6	3	20							D.S.&S.C.ENAM.	BLACK GLAZE COTTON BRAID	
6178	1.125	1.125	213	102	22			3	22	3	22	D.C. ENAM.	D.C. L.T. B&P.	
6179	.359	.359	12	6	20							D.S. & S.C.ENAM.	BLACK GLAZED COTTON BRAID	
6180	.422	.422	16	8	20							" " "	" " "	
6181	.469	.469	22	11	20							" " "	" " "	
6182	.438	.281	13	6	22					1	22	D.C.ENAM.	D.C, L.T. B&P.	
6183	.75	.4063	53	20	22	10	22	1	22	1	22	" " "	" " "	
6184	.63	.5	63	20 10	22 19			1	19	1	19	" " "	" " "	
6189	1.0	.5625	105	20 20	22 19	20	22	1	22	1	22	" " "	" " "	
6190	.5	.201	30	10	22	10	22					" " "	9THDS.#29½ COTTON. 15 TURNS PER FOOT	
6191	.7187	.531	93	30	22	30	22	1	22	1	22	D.C.ENAM.	D.C. L.T. B&P.	
6192	1.03	.563	94	35	22	4 17	16 22	1	22	1	22	" " "	" " "	
6193	.701	.375	46	15	22	15	22	1	22	1	22	" " "	" " "	
6195	.75	.406	53	20	22	10	22	1	22	1	22	" " "	" " "	
6196	.688	.344	43	20	22			1	22	1	22	" " "	" " "	
6198	.695	.375	42	13 8	22 19							" " "	" " "	
6199	.75	.406	50	17 8	22 19							" " "	" " "	
6201	.781	.437	63	20	22	20	22	1	22	1	22	" " "	" " "	
6202	.8125	.437	78	25	22	25	22	1	22	1	22	" " "	" " "	
6204	.781	.375	39	12	22	12	22	1	22	1	22	" " "	" " "	
6205	.781	.375	39	12	22	12	22	1	22	1	22	" " "	" " "	
6207	.391	.391	14	6	20	2	20					D.S.&S.C.ENAM.	BLACK GLAZED COTTON BRAID	

SHEET Nº 1
ES-225210

SWITCHBOARD CABLES

CODE	SIZE		Nº OF	QUADS		TRIPLES		PAIRS		SINGLES		SP. PRS.		SP. SGLS.		INS. OF COND.	INS. OF CABLES
	WIDTH	THICK.	COND.	Nº	GA.	Nº	GA.	Nº	GA.	Nº	GA.	Nº	GA.	Nº	GA.		
6208	.438	.438	17			3	20	3	20	2	20					D.S.&S.C.ENAM.	
6209	.484	.484	24	4	20			3	20	2	20					" " "	
6210	.422	.422	16	1	20	2	20	3	20							" " "	WAXED CORE & BLACK GLAZED
6211	.469	.469	21	1	20	2	20	5	20	1	20					" " "	
6212	.453	.453	20					9	20	2	20					" " "	
6213	.5	.5	26					12	20	2	20					" " "	
6214	.438	.438	18					9	20							" " "	
6215	.75	.406	32					4	19	20	16	1	19	2	16	D.C.ENAM.	D.C. L.T. B&P.
6217	.75	.406	46					5	19	34	22			1 1	19 22	" " "	" " "
6218	.563	.328	39					5	19	27	22			1 1	25 19	" " "	" " "
6219	1.125	.594	113					40	22	30	22	1	22	1	22	" " "	" " "
6220	.5	.313	23					10	22			1	22	1	22	" " "	" " "
6221			62					30	19			1	19			" " "	" " "

ES-225210

SWITCHBOARD CABLES
CODE NUMBERS AND DIMENSIONS
FULL MECHANICAL POWER DRIVEN SYSTEM

APPROVED: K.D. Lowry | J.R. | DRAWN BY C.N.W. | CHECKED BY B.V.

WESTERN ELECTRIC CO., INC., N.Y. ENG. DEPT.

D9325	.375	.375	24					4	19	13	16	1	19	1	16	D.S. & S.C.	D.C. L.T. B&P
D9574	1.031	.813	146					20 40	19 22	20	22	1 1	19 22	2	22	" " "	" " "
D9576	.6875	.375	19					4	19	8	16	1	19	1	16	" " "	" " "
D9577	.875	.375	27					4	19	15	16	1	19	2	16	" " "	" " "
D11903	.695	.375	32					4	19	20	16	1	19	2	16	" " "	" " "
D13393	.5	.3125	13							12	16			1	16	" " "	" " "
D5819			14					2	22	10	16					" " "	" " "
D23183 D24183	1.125	1.125	213					102	22			3	22	3	22	" " "	" " "
D25996	.781	.4062	22					10	16			1	16			" " "	" " "
D25997	.781	.4062	64					20	16	20	22	1	16	2	22	" " "	" " "

SHEET Nº 2
ES-225210

SECTION IX - FIG. 1

PAIRS

NO	COLORS
1	BLUE PAIRED WITH WHITE
2	ORANGE " " WHITE
3	GREEN " " WHITE
4	BROWN " " WHITE
5	SLATE " " WHITE
6	BLUE-WHITE " " WHITE
7	BLUE-ORANGE " " WHITE
8	BLUE-GREEN " " WHITE
9	BLUE-BROWN " " WHITE
10	BLUE-SLATE " " WHITE
11	ORANGE-WHITE " " WHITE
12	ORANGE-GREEN " " WHITE
13	ORANGE-BROWN " " WHITE
14	ORANGE-SLATE " " WHITE
15	GREEN-WHITE " " WHITE
16	GREEN-BROWN " " WHITE
17	GREEN-SLATE " " WHITE
18	BROWN-WHITE " " WHITE
19	BROWN-SLATE " " WHITE
20	SLATE-WHITE " " WHITE
21	BLUE " " RED
22	ORANGE " " RED
23	GREEN " " RED
24	BROWN " " RED
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26	BLUE-WHITE " " RED
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36	GREEN-BROWN " " RED
37	GREEN-SLATE " " RED
38	BROWN-WHITE " " RED
39	BROWN-SLATE " " RED
40	SLATE-WHITE " " RED
41	BLUE " " BLACK
42	ORANGE " " BLACK
43	GREEN " " BLACK
44	BROWN " " BLACK
45	SLATE " " BLACK
46	BLUE-WHITE " " BLACK
47	BLUE-ORANGE " " BLACK
48	BLUE-GREEN " " BLACK
49	BLUE-BROWN " " BLACK
50	BLUE-SLATE " " BLACK
51	ORANGE-WHITE " " BLACK
52	ORANGE-GREEN " " BLACK
53	ORANGE-BROWN " " BLACK
54	ORANGE-SLATE " " BLACK
55	GREEN-WHITE " " BLACK
56	GREEN-BROWN " " BLACK
57	GREEN-SLATE " " BLACK
58	BROWN-WHITE " " BLACK
59	BROWN-SLATE " " BLACK
60	SLATE-WHITE " " BLACK
61	BLUE " " RED-WHITE
62	ORANGE " " RED-WHITE
63	GREEN " " RED-WHITE
64	BROWN " " RED-WHITE
65	SLATE " " RED-WHITE
66	BLUE-WHITE " " RED-WHITE
67	BLUE-ORANGE " " RED-WHITE
68	BLUE-GREEN " " RED-WHITE
69	BLUE-BROWN " " RED-WHITE
70	BLUE-SLATE " " RED-WHITE
71	ORANGE-WHITE " " RED-WHITE
72	ORANGE-GREEN " " RED-WHITE
73	ORANGE-BROWN " " RED-WHITE
74	ORANGE-SLATE " " RED-WHITE
75	GREEN-WHITE " " RED-WHITE
76	GREEN-BROWN " " RED-WHITE
77	GREEN-SLATE " " RED-WHITE
78	BROWN-WHITE " " RED-WHITE
79	BROWN-SLATE " " RED-WHITE
80	SLATE-WHITE " " RED-WHITE
81	BLUE " " BLACK-WHITE
82	ORANGE " " BLACK-WHITE
83	GREEN " " BLACK-WHITE
84	BROWN " " BLACK-WHITE
85	SLATE " " BLACK-WHITE
86	BLUE-WHITE " " BLACK-WHITE
87	BLUE-ORANGE " " BLACK-WHITE

PAIRS

NO.	COLORS
88	BLUE-GREEN PAIRED WITH BLACK-WHITE
89	BLUE-BROWN " " BLACK-WHITE
90	BLUE-SLATE " " BLACK-WHITE
91	ORANGE-WHITE " " BLACK-WHITE
92	ORANGE-GREEN " " BLACK-WHITE
93	ORANGE-BROWN " " BLACK-WHITE
94	ORANGE-SLATE " " BLACK-WHITE
95	GREEN-WHITE " " BLACK-WHITE
96	GREEN-BROWN " " BLACK-WHITE
97	GREEN-SLATE " " BLACK-WHITE
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99	BROWN-SLATE " " BLACK-WHITE
100	SLATE-WHITE " " BLACK-WHITE
101	BLUE " " RED-BLACK
102	ORANGE " " RED-BLACK
103	GREEN " " RED-BLACK
104	BROWN " " RED-BLACK
105	SLATE " " RED-BLACK
106	BLUE-WHITE " " RED-BLACK
107	BLUE-ORANGE " " RED-BLACK
108	BLUE-GREEN " " RED-BLACK
109	BLUE-BROWN " " RED-BLACK
110	BLUE-SLATE " " RED-BLACK
111	ORANGE-WHITE " " RED-BLACK
112	ORANGE-GREEN " " RED-BLACK
113	ORANGE-BROWN " " RED-BLACK
114	ORANGE-SLATE " " RED-BLACK
115	GREEN-WHITE " " RED-BLACK
116	GREEN-BROWN " " RED-BLACK
117	GREEN-SLATE " " RED-BLACK
118	BROWN-WHITE " " RED-BLACK
119	BROWN-SLATE " " RED-BLACK
120	SLATE-WHITE " " RED-BLACK
121	RED-BLUE " " WHITE
122	RED-ORANGE " " WHITE
123	RED-GREEN " " WHITE
124	RED-BROWN " " WHITE
125	RED-SLATE " " WHITE
126	RED-BLUE-WHITE " " WHITE
127	RED-BLUE-ORANGE " " WHITE
128	RED-BLUE-GREEN " " WHITE
129	RED-BLUE-BROWN " " WHITE
130	RED-BLUE-SLATE " " WHITE
131	RED-ORANGE-WHITE " " WHITE
132	RED-ORANGE-GREEN " " WHITE
133	RED-ORANGE-BROWN " " WHITE
134	RED-ORANGE-SLATE " " WHITE
135	RED-GREEN-WHITE " " WHITE
136	RED-GREEN-BROWN " " WHITE
137	RED-GREEN-SLATE " " WHITE
138	RED-BROWN-WHITE " " WHITE
139	RED-BROWN-SLATE " " WHITE
140	RED-SLATE-WHITE " " WHITE
141	RED-BLUE " " RED
142	RED-ORANGE " " RED
143	RED-GREEN " " RED
144	RED-BROWN " " RED
145	RED-SLATE " " RED
146	RED-BLUE-WHITE " " RED
147	RED-BLUE-ORANGE " " RED
148	RED-BLUE-GREEN " " RED
149	RED-BLUE-BROWN " " RED
150	RED-BLUE-SLATE " " RED
151	RED-ORANGE-WHITE " " RED
152	RED-ORANGE-GREEN " " RED
153	RED-ORANGE-BROWN " " RED
154	RED-ORANGE-SLATE " " RED
155	RED-GREEN-WHITE " " RED
156	RED-GREEN-BROWN " " RED
157	RED-GREEN-SLATE " " RED
158	RED-BROWN-WHITE " " RED
159	RED-BROWN-SLATE " " RED
160	RED-SLATE-WHITE " " RED

SPARE PAIRS

NO.	COLORS
1	WHITE PAIRED WITH RED
2	WHITE " " BLACK
3	RED " " BLACK
4	RED-WHITE " " WHITE
5	RED-WHITE " " RED
6	RED-WHITE " " BLACK
7	BLACK-WHITE " " WHITE
8	BLACK-WHITE " " RED
9	BLACK-WHITE " " BLACK
10	RED-BLACK " " WHITE
11	RED-BLACK " " RED
12	RED-BLACK " " BLACK

TRIPLES

1	BLUE TRIPLED WITH WHITE & RED
2	ORANGE " " WHITE & RED
3	GREEN " " WHITE & RED
4	BROWN " " WHITE & RED
5	SLATE " " WHITE & RED
6	BLUE-WHITE " " WHITE & RED
7	BLUE-ORANGE " " WHITE & RED
8	BLUE-GREEN " " WHITE & RED
9	BLUE-BROWN " " WHITE & RED
10	BLUE-SLATE " " WHITE & RED
11	ORANGE-WHITE " " WHITE & RED
12	ORANGE-GREEN " " WHITE & RED
13	ORANGE-BROWN " " WHITE & RED
14	ORANGE-SLATE " " WHITE & RED
15	GREEN-WHITE " " WHITE & RED
16	GREEN-BROWN " " WHITE & RED
17	GREEN-SLATE " " WHITE & RED
18	BROWN-WHITE " " WHITE & RED
19	BROWN-SLATE " " WHITE & RED
20	SLATE-WHITE " " WHITE & RED

SPARE TRIPLES

1	BLACK TRIPLED WITH WHITE & RED

SINGLES

NO.	COLORS
1	RED-BLUE
2	RED-ORANGE
3	RED-GREEN
4	RED-BROWN
5	RED-SLATE
6	RED-BLUE-WHITE
7	RED-BLUE-ORANGE
8	RED-BLUE-GREEN
9	RED-BLUE-BROWN
10	RED-BLUE-SLATE
11	RED-ORANGE-WHITE
12	RED-ORANGE-GREEN
13	RED-ORANGE-BROWN
14	RED-ORANGE-SLATE
15	RED-GREEN-WHITE
16	RED-GREEN-BROWN
17	RED-GREEN-SLATE
18	RED-BROWN-WHITE
19	RED-BROWN-SLATE
20	RED-SLATE-WHITE
21	BLACK-BLUE
22	BLACK-ORANGE
23	BLACK-GREEN
24	BLACK-BROWN
25	BLACK-SLATE
26	BLACK-BLUE-WHITE
27	BLACK-BLUE-ORANGE
28	BLACK-BLUE-GREEN
29	BLACK-BLUE-BROWN
30	BLACK-BLUE-SLATE
31	BLACK-ORANGE-WHITE
32	BLACK-ORANGE-GREEN
33	BLACK-ORANGE-BROWN
34	BLACK-ORANGE-SLATE
35	BLACK-GREEN-WHITE
36	BLACK-GREEN-BROWN
37	BLACK-GREEN-SLATE
38	BLACK-BROWN-WHITE
39	BLACK-BROWN-SLATE
40	BLACK-SLATE-WHITE
41	RED-BLACK-BLUE
42	RED-BLACK-ORANGE
43	RED-BLACK-GREEN
44	RED-BLACK-BROWN
45	RED-BLACK-SLATE
46	RED-BLACK-BLUE-WHITE
47	RED-BLACK-BLUE-ORANGE
48	RED-BLACK-BLUE-GREEN
49	RED-BLACK-BLUE-BROWN
50	RED-BLACK-BLUE-SLATE
51	RED-BLACK-ORANGE-WHITE
52	RED-BLACK-ORANGE-GREEN
53	RED-BLACK-ORANGE-BROWN
54	RED-BLACK-ORANGE-SLATE
55	RED-BLACK-GREEN-WHITE
56	RED-BLACK-GREEN-BROWN
57	RED-BLACK-GREEN-SLATE
58	RED-BLACK-BROWN-WHITE
59	RED-BLACK-BROWN-SLATE
60	RED-BLACK-SLATE-WHITE

SPARE SINGLES

1	RED-WHITE
2	BLACK-WHITE
3	RED-BLACK
4	RED-BLACK-WHITE

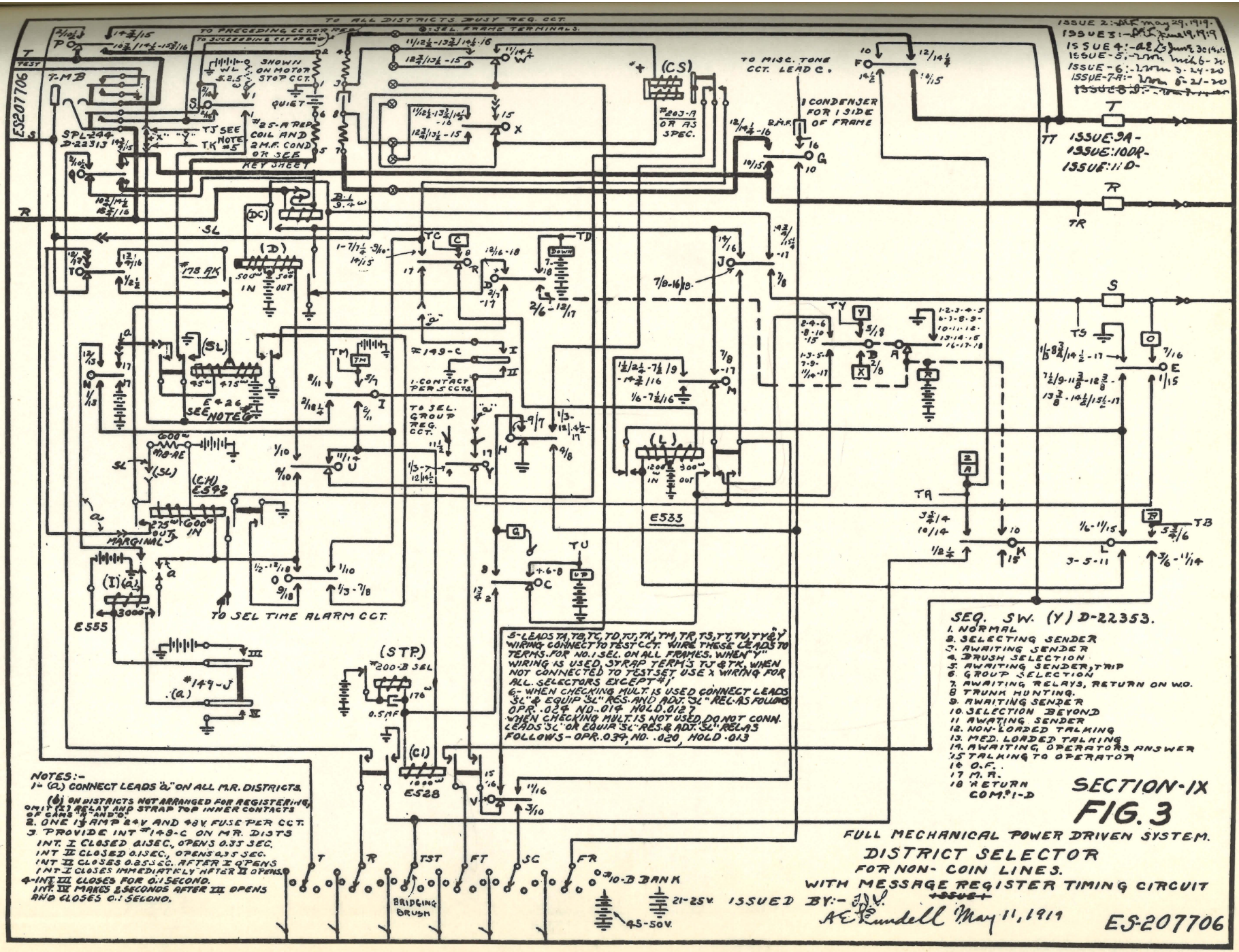
GROUND WIRE

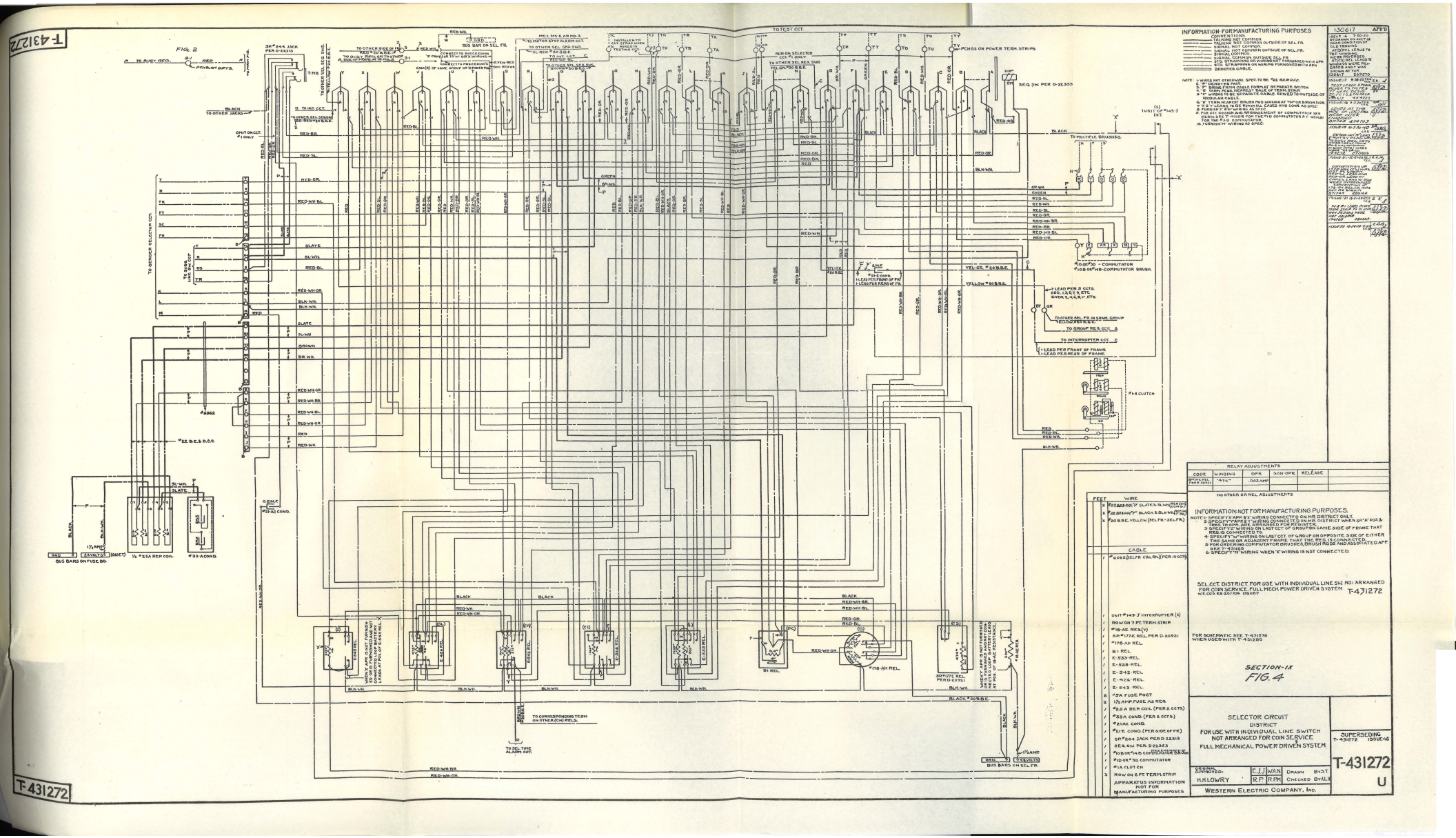
1	BLACK

MADE FROM A-12004 1SS 5

SECTION-IX
FIG-2

SWITCHBOARD CABLES
WESTERN ELECTRIC CO. COLOR SCHEME


TO ALL DISTRICTS BUSY REG. CCT.
TO PRECEDING CCT. OR REG.
TO SUCCEEDING CCT. OR REG.
SEL. FRAME TERMINALS.
ES207706
TEST
SPL244 D-22313
T-M B
SHOWN WL ON MOTOR S.2.5 STOP CCT.
QUIET
TJ SEE NOTE 25
TK
#25-A REP. COIL AND 2 M.F. COND OR SEE KEY SHEET
(DC)
(D)
#178 AK
500 IN
500 OUT
(SL)
#149-C
1 CONTACT PER 5 CCTS.
TO SEL. GROUP REG. CCT.
E 26 SEE NOTE 6
600 M.A.E
(C.H) E592
275 OUT
600 IN
MARGINAL
(I)(a)
3000
E555
TO SEL TIME ALARM CCT.
#149-J
(a)
(STP.)
#200-B SEL
176
0.5 M.F
(C1)
1000
E528
(CS)
#203-A OR AS SPEC.
TO MISC. TONE CCT. LEAD C.
1 CONDENSER FOR 1 SIDE OF FRAME
D.P.F.
(L)
200 IN
300 OUT
E533
TC
TD
TU
TY
TS
TA
TB
TT
TR
ISSUE 2:- May 29, 1919.
ISSUE 3:- June 19, 1919
ISSUE 4:- Aug 30, 1919
ISSUE 5:- March 6-20
ISSUE 6:- March 3-24-20
ISSUE 7-A:- March 6-21-20
ISSUE 8:-
ISSUE 9A-
ISSUE 10D-
ISSUE 11D-
SEQ. SW. (Y) D-22353.
1. NORMAL
2. SELECTING SENDER
3. AWAITING SENDER
4. BRUSH SELECTION
5. AWAITING SENDER, TRIP
6. GROUP SELECTION
7. AWAITING RELAYS, RETURN ON W.O.
8 TRUNK HUNTING.
9. AWAITING SENDER
10. SELECTION BEYOND
11. AWAITING SENDER
12. NON-LOADED TALKING
13. MED. LOADED TALKING
14. AWAITING, OPERATOR'S ANSWER
15 TALKING TO OPERATOR
16 O.F.
17 M.R.
18 RETURN COM.S 1-D
5-LEADS TA, TB, TC, TD, TJ, TK, TM, TR, TS, TT, TU, TY & V WIRING CONNECT TO TEST CCT. WIRE THESE LEADS TO TERMS. FOR NO. 1 SEL. ON ALL FRAMES. WHEN "Y" WIRING IS USED, STRAP TERM'S TJ & TK, WHEN NOT CONNECTED TO TEST SET USE 'X' WIRING FOR ALL SELECTORS EXCEPT 'J'.
6- WHEN CHECKING MULT. IS USED CONNECT LEADS "SL" & EQUIP "SL" RES. AND ADJ. "SL" REL. AS FOLLOWS OPR. .034 NO. .019 HOLD .0127
WHEN CHECKING MULT. IS NOT USED DO NOT CONN. LEADS "SL" OR EQUIP "SL" RES. & ADJ. "SL" RELAYS FOLLOWS - OPR. .039, NO. .020, HOLD .013
NOTES:-
1- (a) CONNECT LEADS "a" ON ALL M.R. DISTRICTS.
(b) ON DISTRICTS NOT ARRANGED FOR REGISTERING, ONLY (2) RELAY AND STRAP TOP INNER CONTACTS OF CAMS "A" AND "B".
2. ONE 13 AMP 24 V AND 48 V FUSE PER CCT.
3. PROVIDE INT #149-C ON M.R. DISTS
INT. I CLOSED 0.1 SEC., OPENS 0.35 SEC.
INT. II CLOSED 0.1 SEC., OPENS 0.35 SEC.
INT. II CLOSES 0.25 SEC. AFTER I OPENS
INT. I CLOSES IMMEDIATELY AFTER II OPENS.
4- INT. III CLOSES FOR 0.1 SECOND.
INT. III MAKES 2 SECONDS AFTER III OPENS AND CLOSES 0.1 SECOND.
T
R
TST
FT
SC
FR
BRIDGING BRUSH
10-D BANK
21-25 V.
45-50 V.
ISSUED BY:- J.V.
A.E. Lundell May 11, 1919
SECTION-IX
FIG. 3
FULL MECHANICAL POWER DRIVEN SYSTEM.
DISTRICT SELECTOR
FOR NON-COIN LINES.
WITH MESSAGE REGISTER TIMING CIRCUIT
ES-207706


T-431272
FIG. 2
SR #244 JACK PER D-22313
SEQ. SW. PER D-22353
#1A CLUTCH
#2A FUSE POST
#2A REP. COIL (PER 2 CCTS.)
#33A COND. (PER 2 CCTS.)
#21AC COND.
#21E COND. (PER SIDE OF FR.)
#178-AH REL.
#178-AK REL.
#178-AE RES'S
#1 REL.
#2 REL.
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INFORMATION-FOR MANUFACTURING PURPOSES
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SELECTOR CIRCUIT
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FOR USE WITH INDIVIDUAL LINE SWITCH
NOT ARRANGED FOR COIN SERVICE
FULL MECHANICAL POWER DRIVEN SYSTEM.
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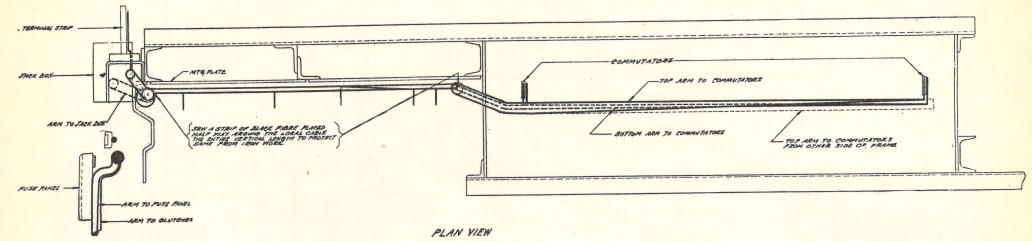
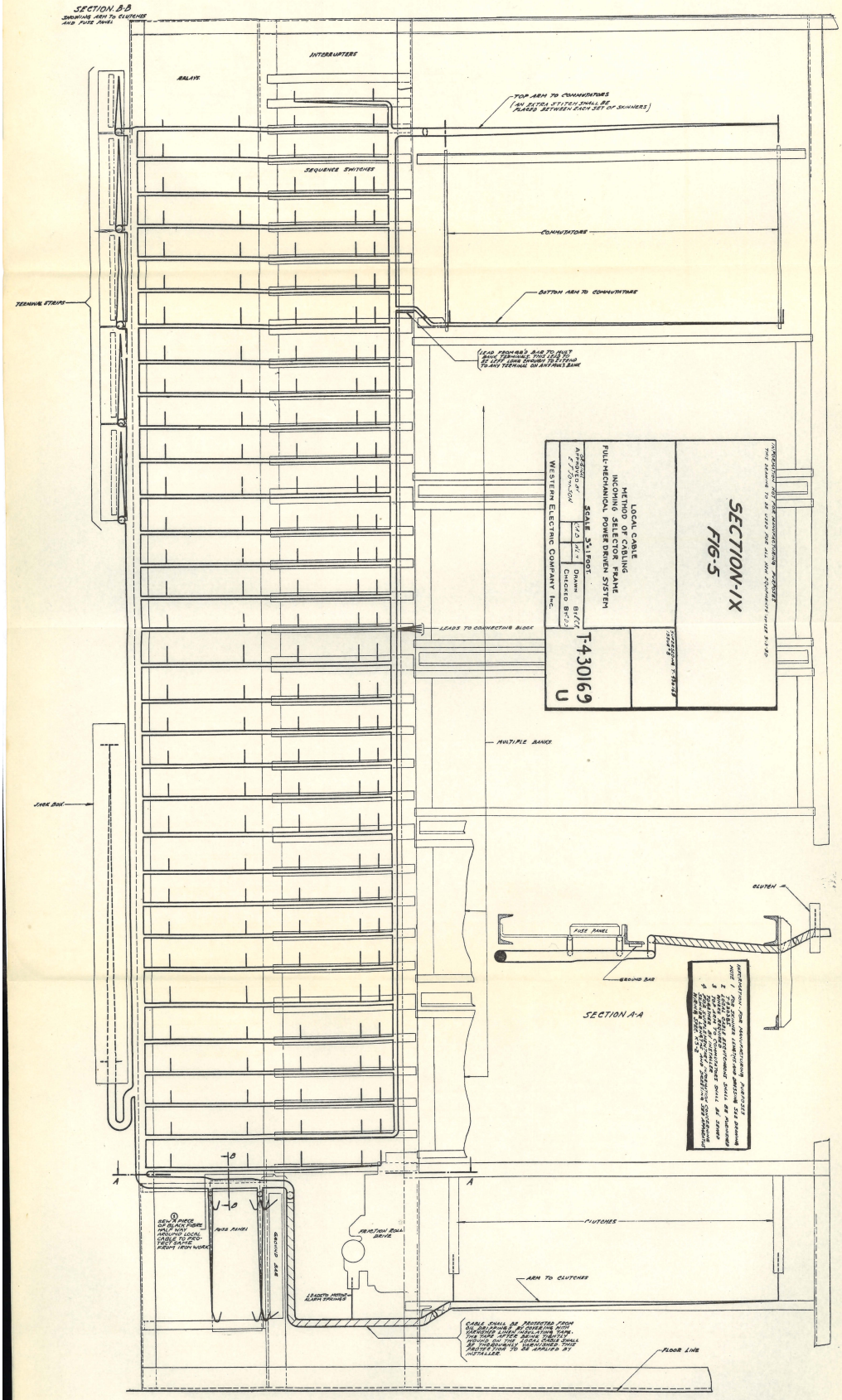
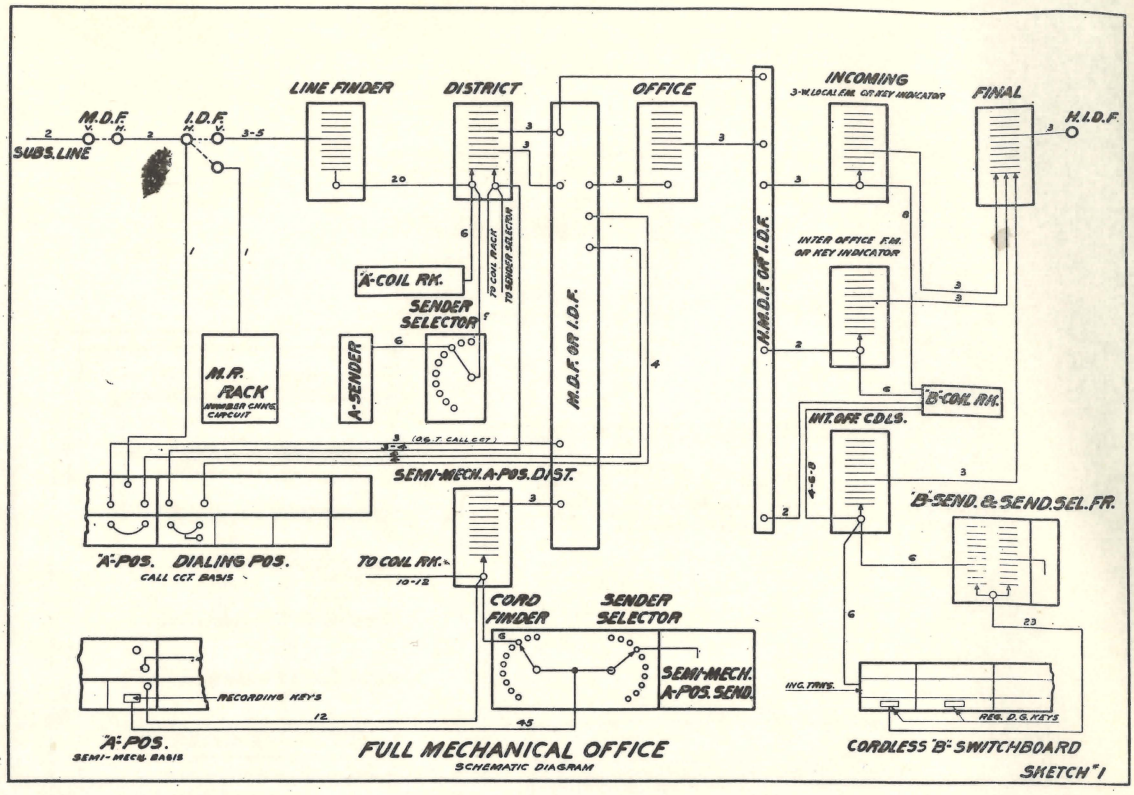
WESTERN ELECTRIC COMPANY, Inc.
SECTION-IX
FIG. 4

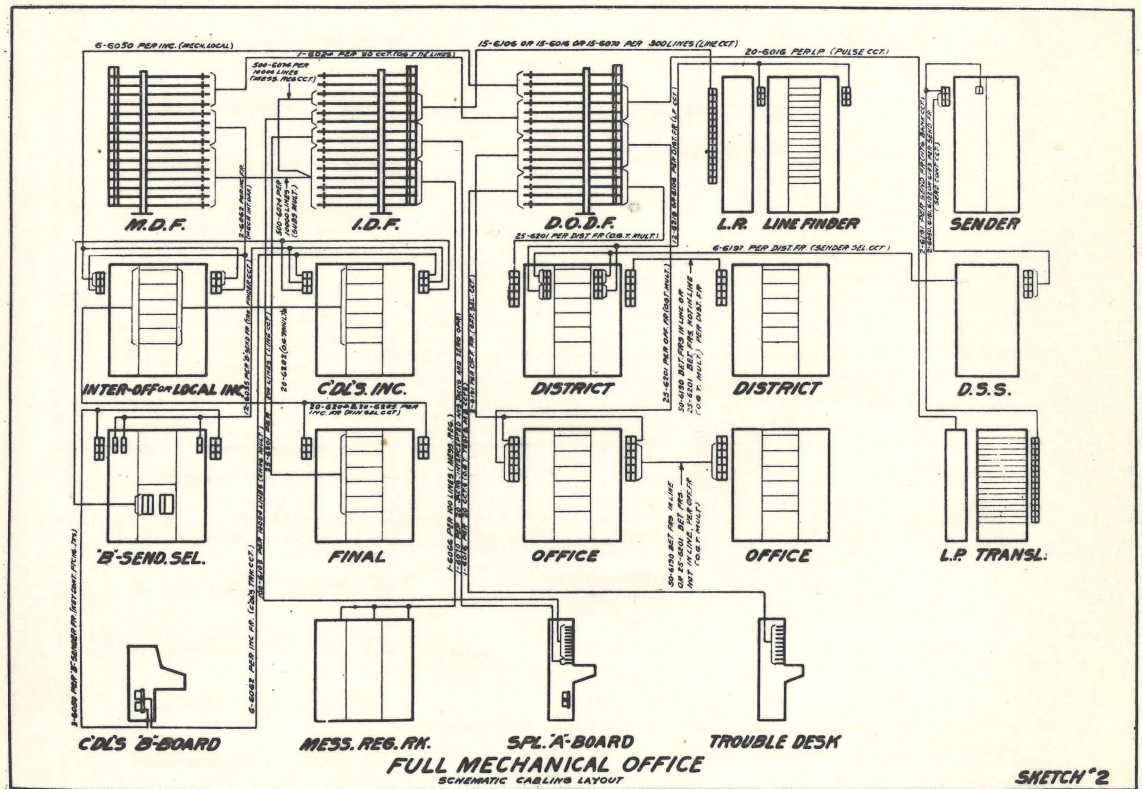


PLAN VIEW



ELEVATION
(LOOKING AT MAIN SIDE)





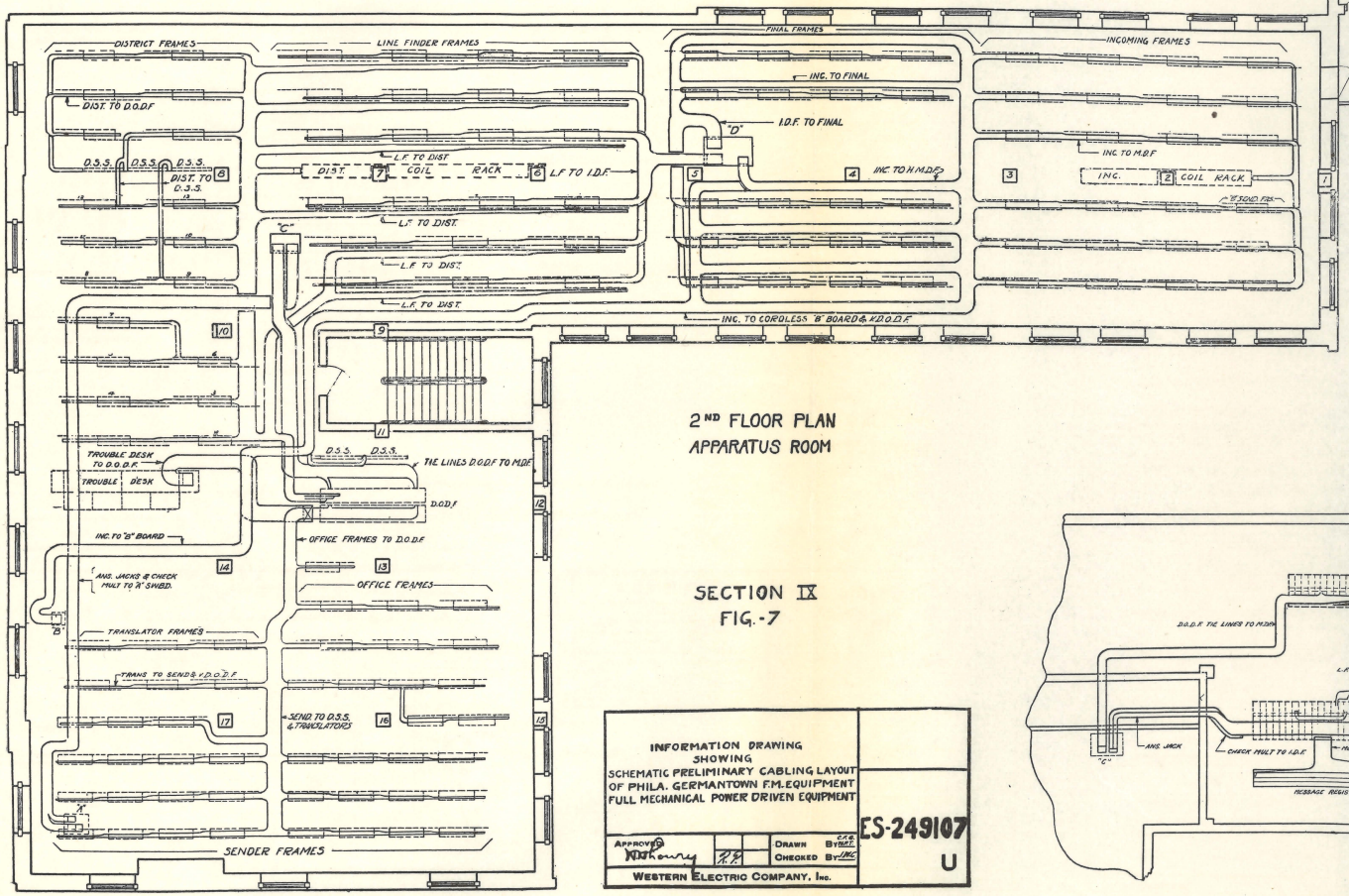
FS-249106

SECTION-1X
FIG. 6

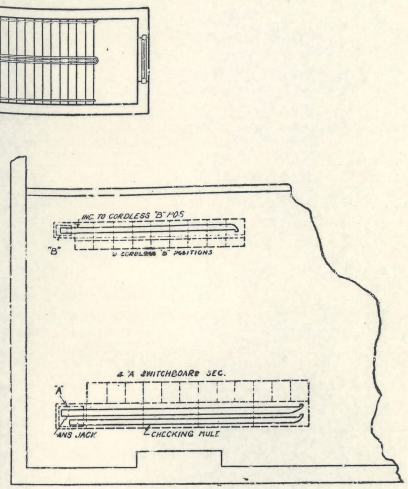
INFORMATION DRAWING
SHOWING
SCHEMATIC LAYOUTS OF LEADS IN CABLE
FOR A MECHANICAL UNIT
FULL MECHANICAL POWER DRIVEN SYSTEM

Approved:	7/25	X	Drawn By:
	1-12	X	Checked By:

WESTERN ELECTRIC Co. INC. N.Y. ENG. DEPT.



2ND FLOOR PLAN
APPARATUS ROOM



SKETCH 3RD FLOOR
OPERATING ROOM

SECTION IX
FIG.-7

INFORMATION DRAWING SHOWING SCHEMATIC PRELIMINARY CABLING LAYOUT OF PHILA. GERMANTOWN F.M. EQUIPMENT FULL MECHANICAL POWER DRIVEN EQUIPMENT	ES-249107 U
Approved: [illegible] 7-8-21	Drawn By: [illegible] 6-26-21
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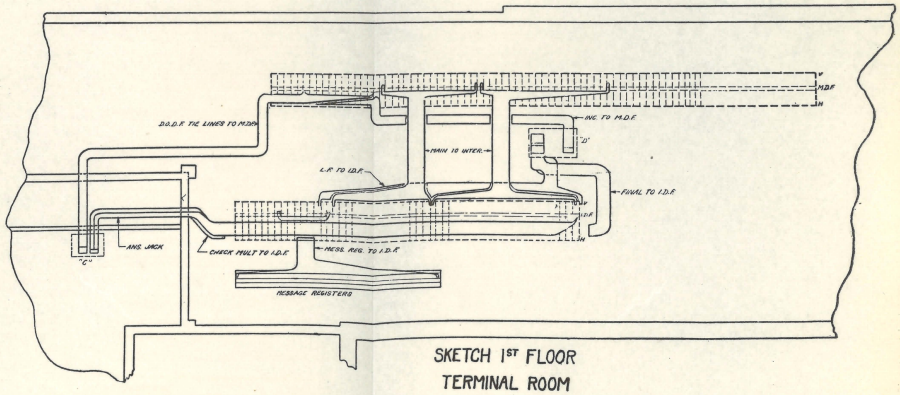
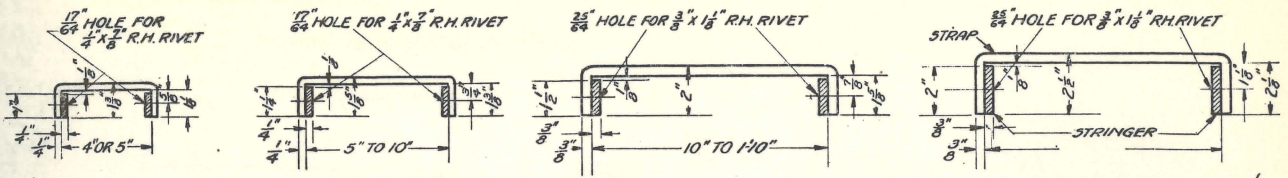
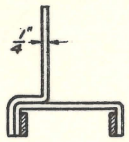
WESTERN ELECTRIC COMPANY, Inc.	



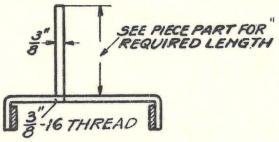
SKETCH 1ST FLOOR
TERMINAL ROOM



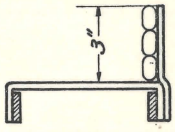
CROSS SECTIONS OF STANDARD CABLE RACKS



CROSS SECTION WITH BENT BAR UPRIGHT

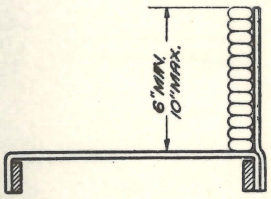


CROSS SECTION WITH PIN UPRIGHT

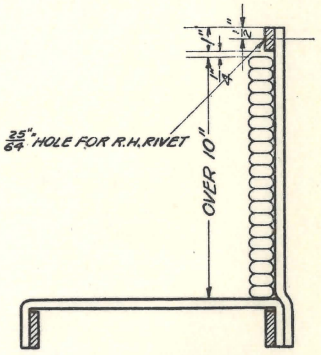


CROSS SECTION SHOWING MINIMUM UPRIGHT CABLES ON EDGE

PINS		
DIA	OVERALL LENGTH	PIECE PART
3/8"	4 1/4"	P-67159
3/8"	5 1/2"	P-65195
3/8"	5 3/4"	P-44559
3/8"	7"	P-65302
3/8"	8 1/2"	P-65196

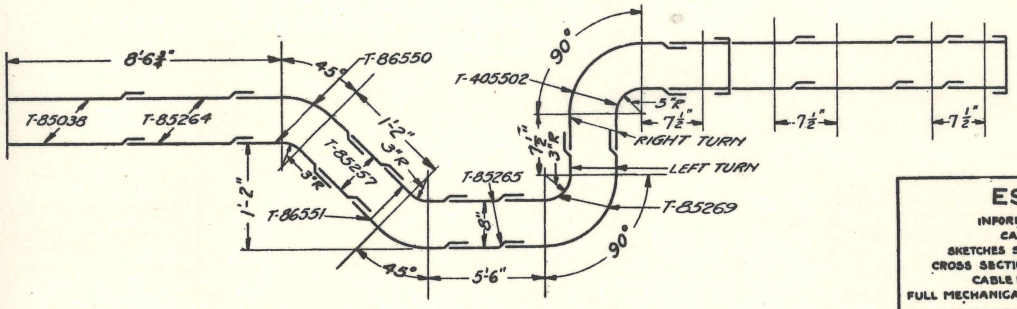


CROSS SECTION SHOWING MINIMUM HEIGHT OF CABLES ON FLAT. MAXIMUM HEIGHT WITHOUT THIRD STRINGER

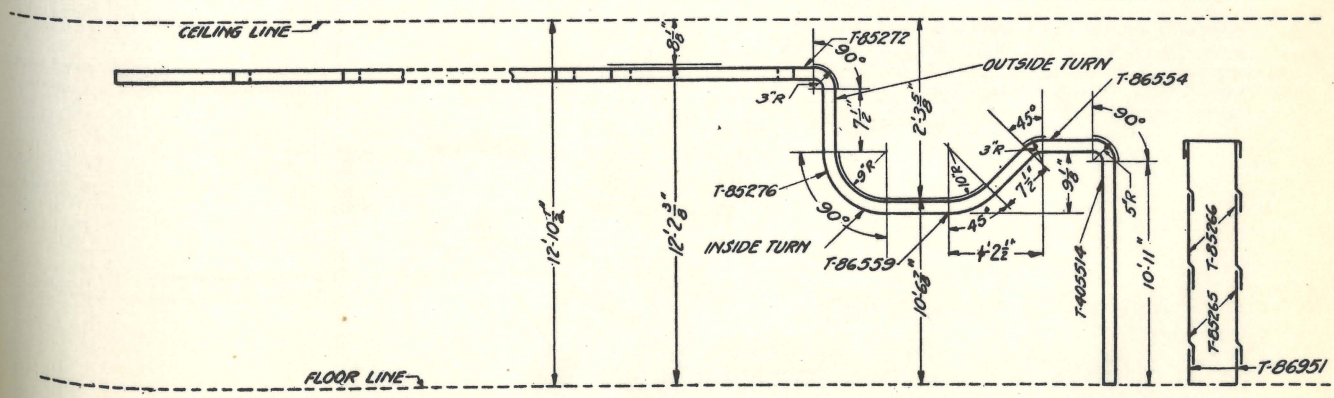


CROSS SECTION WITH THIRD STRINGER ON THE INSIDE OF UPRIGHT

SKETCH - 1
STANDARD CABLE RACK
CROSS SECTIONS

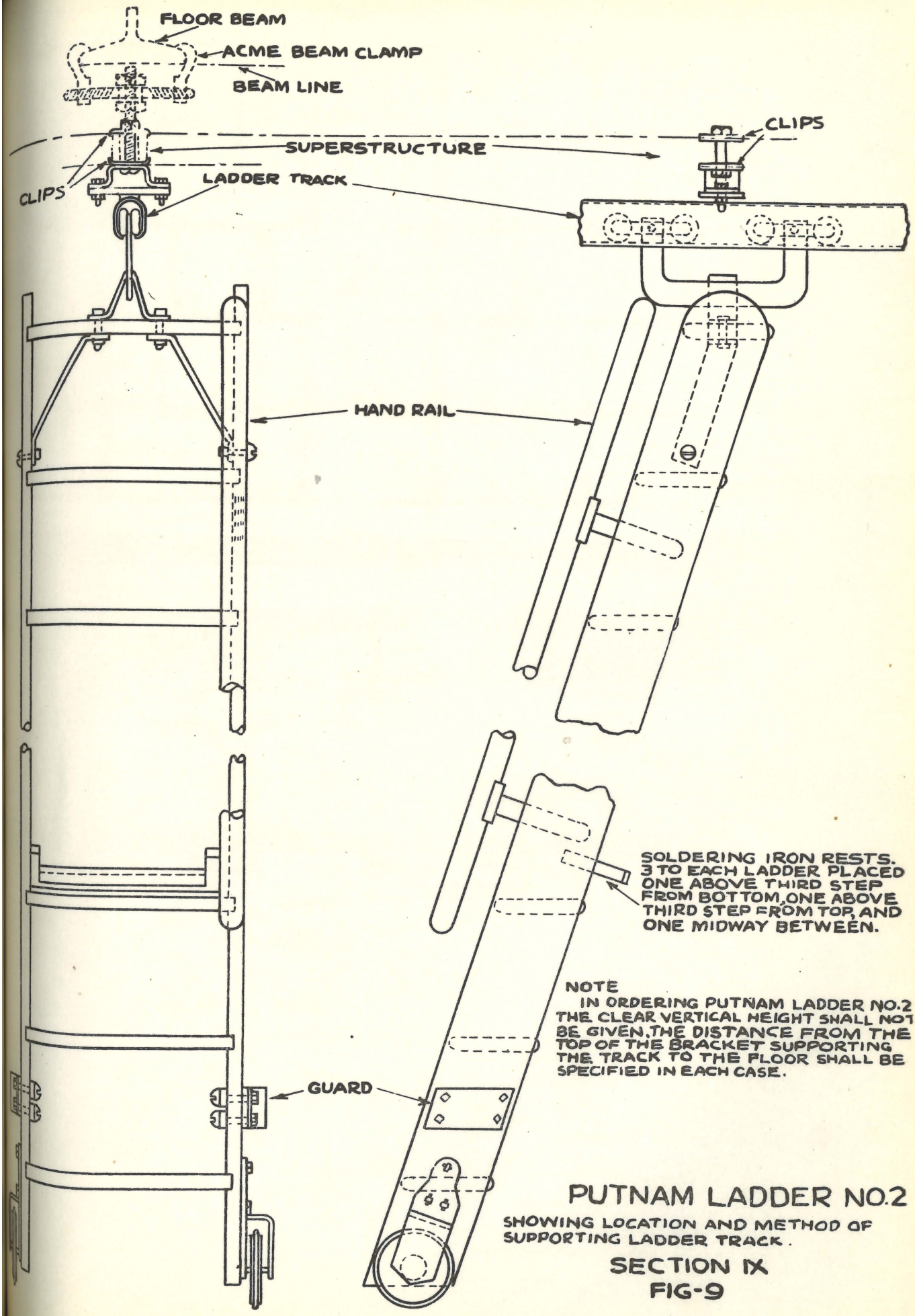


ES-249113			
INFORMATION DRAWING CABLE RACKS SKETCHES SHOWING STANDARD CROSS SECTIONS AND A SPECIMEN CABLE RACK LAYOUT FULL MECHANICAL POWER DRIVEN SYSTEM			
APPROVED:		X	DRAWN BY: KHJ
	R.P.B.	X	CHECKED BY:
WESTERN ELECTRIC CO., INC., N.Y.			ENG. DEPT



SKETCH - 2
SPECIMEN CABLE RACK DRAWING USING
STANDARD PARTIAL ASSEMBLIES

SECTION IX
FIGURE 8

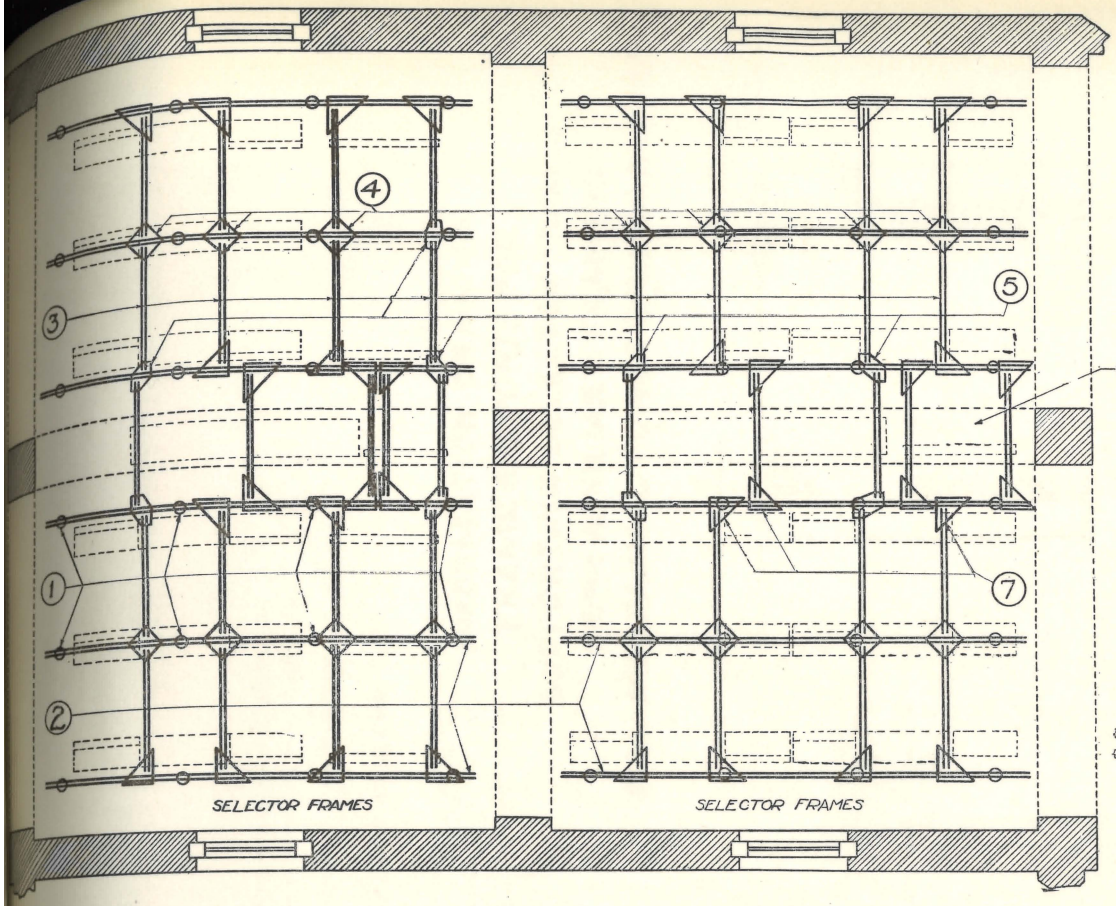


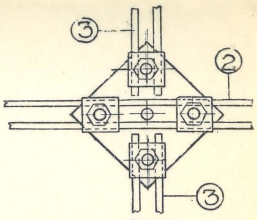
NOTE
IN ORDERING PUTNAM LADDER NO.2 THE CLEAR VERTICAL HEIGHT SHALL NOT BE GIVEN, THE DISTANCE FROM THE TOP OF THE BRACKET SUPPORTING THE TRACK TO THE FLOOR SHALL BE SPECIFIED IN EACH CASE.

PUTNAM LADDER NO.2

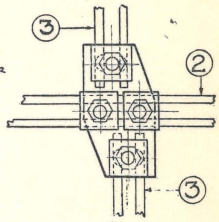
SHOWING LOCATION AND METHOD OF SUPPORTING LADDER TRACK.

SECTION IX
FIG-9

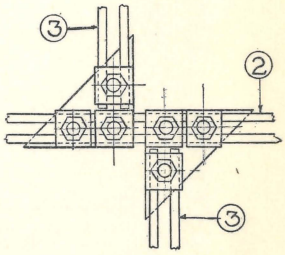




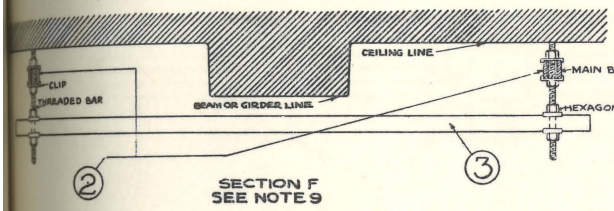
PLAN
ASSEMBLY "A"
SEE NOTE 4



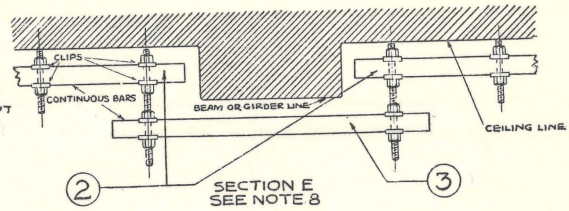
PLAN
ASSEMBLY "B"
SEE NOTE 5



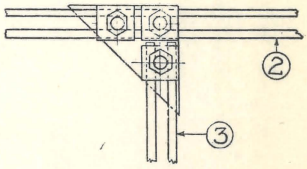
PLAN
ASSEMBLY "C"
SEE NOTE 6



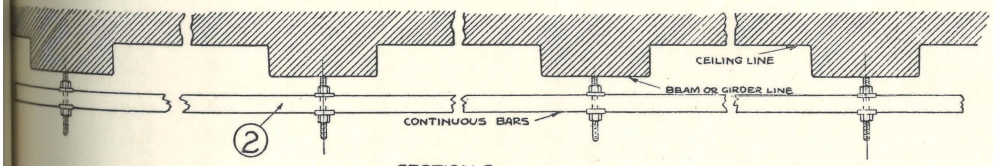
SECTION F
SEE NOTE 9



SECTION E
SEE NOTE 8



PLAN
ASSEMBLY "D"
SEE NOTE 7



SECTION G
SEE NOTE 10

NOTES

1. BEAM CLAMPS, OR KNEAS SOCKETS, OR FLOOR BOLTS.
2. MAIN BARS SUPPORTED BY BEAM CLAMPS OR KNEAS SOCKETS.
3. INTERMEDIATE BARS SUPPORTING THE FRAMES.
4. USE ASSEMBLY "A" FOR SUPPORTING INTERMEDIATE BARS TO MAIN BAR WHEN THE INTERMEDIATE BARS CONTINUE IN A STRAIGHT LINE.
5. USE ASSEMBLY "B" FOR SUPPORTING INTERMEDIATE BARS TO MAIN BARS WHEN THE INTERMEDIATE BARS HAVE A 1½" OFFSET OR LESS.
6. USE ASSEMBLY "C" FOR SUPPORTING INTERMEDIATE BARS TO MAIN BARS WHEN THE INTERMEDIATE BARS HAVE AN OFFSET OF MORE THAN 1½".
7. USE ASSEMBLY "D" WHEN INTERMEDIATE BARS TERMINATE AT MAIN BARS.
8. SEE SECTION "E" WHEN IT IS NECESSARY TO SUPPORT FRAMES OR CABLE RUNS UNDER BEAMS OR GIRDERS AND WHERE MAIN SUPERSTRUCTURE BARS ARE PERPENDICULAR TO BEAMS OR GIRDERS.
9. SEE SECTION "F" WHEN IT IS NECESSARY TO SUPPORT FRAMES OR CABLE RUNS UNDER BEAMS OR GIRDERS AND WHERE MAIN SUPERSTRUCTURE BARS ARE PARALLEL TO BEAMS OR GIRDERS.
10. SEE SECTION "G" WHEN BEAM CLAMPS OR KNEAS SOCKETS ARE FASTENED TO BEAMS WHICH ARE NOT FLUSH WITH CEILING, RUN MAIN SUPERSTRUCTURE BARS 4" BELOW BEAM LINE.

ES-249111

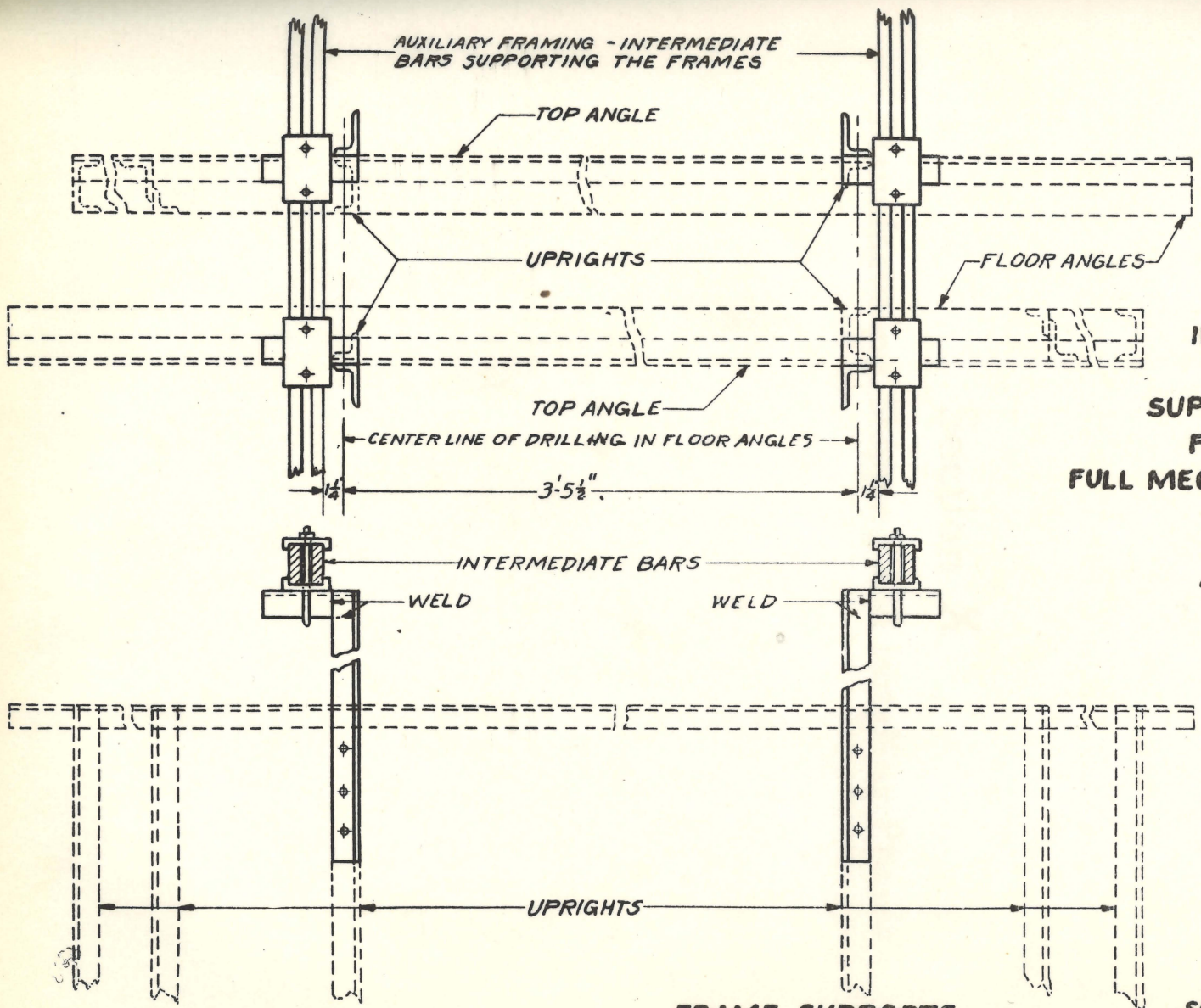
SECTION IX
FIG-10

MADE FROM
I-505238 ISSUE:1

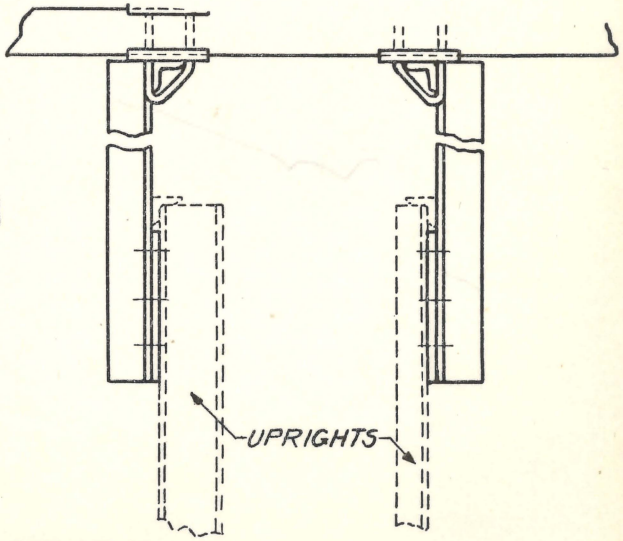
INFORMATION DRAWING
AUXILIARY FRAMING
FOR THE SUPPORT OF MACHINE SWITCHING FRAMES, RACKS, CABLE RACKS, ETC.
FULL MECHANICAL POWER DRIVEN SYSTEM

APPROVED W.H. Mowry	E.J.J.	X	DRAWN BY W.Y.B.
	R.P.B.		CHECKED BY...

WESTERN ELECTRIC CO., INC., N.Y. ENG. DEPT.



INFORMATION DRAWING
FRAME SUPPORTS FOR
SUPPORTING SELECTOR FRAMES
FROM AUXILIARY FRAMING
FULL MECHANICAL POWER DRIVEN SYSTEM

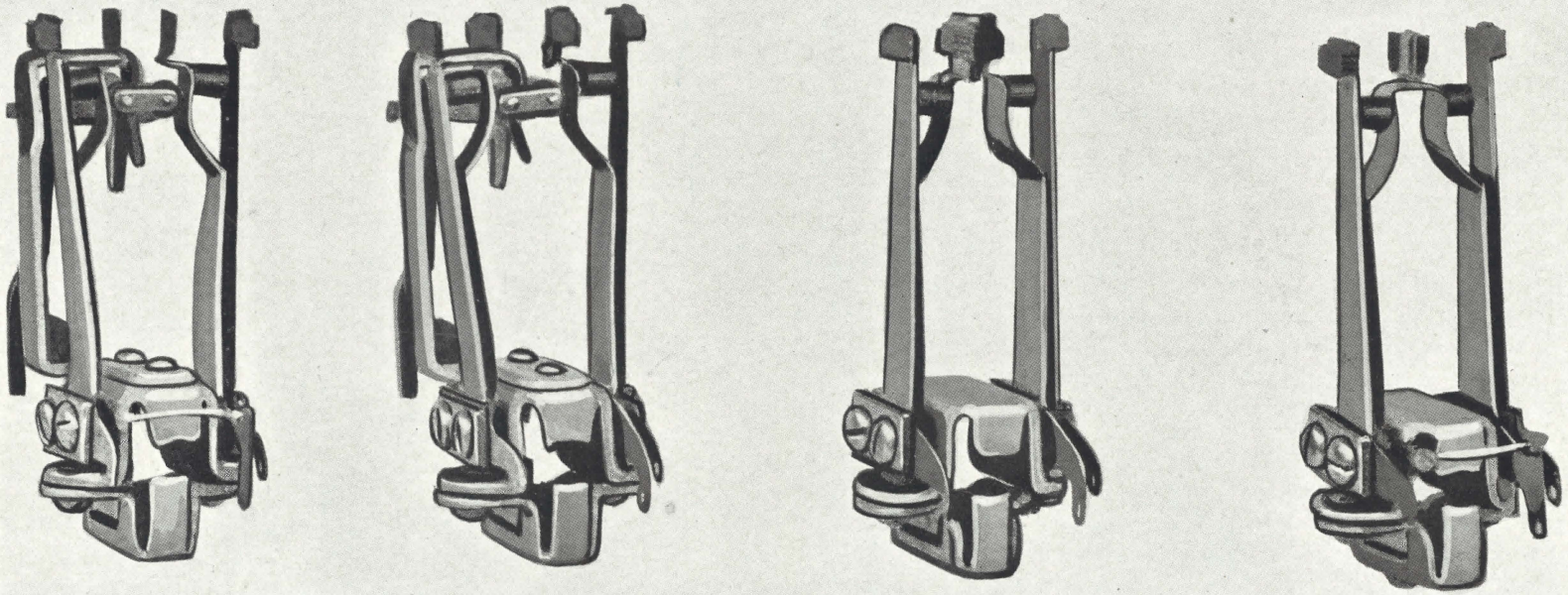


FRAME SUPPORTS
FOR SUPPORTING SELECTOR FRAMES
FROM AUXILIARY FRAMING

SECTION IX
FIG. 11

Section X

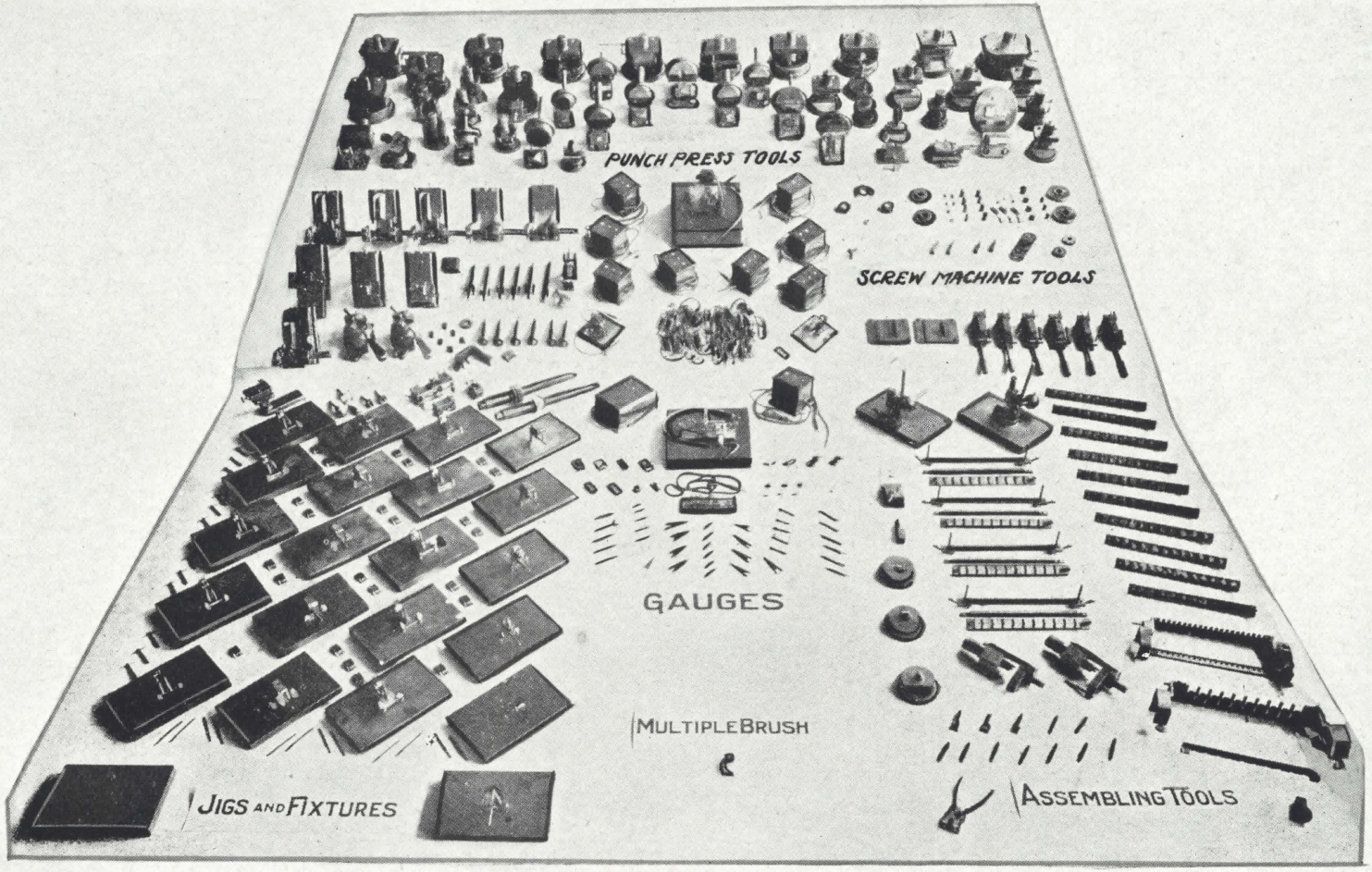
Manufacturing, Shipping and Installing Phases



MULTIPLE BRUSHES

SECTION X

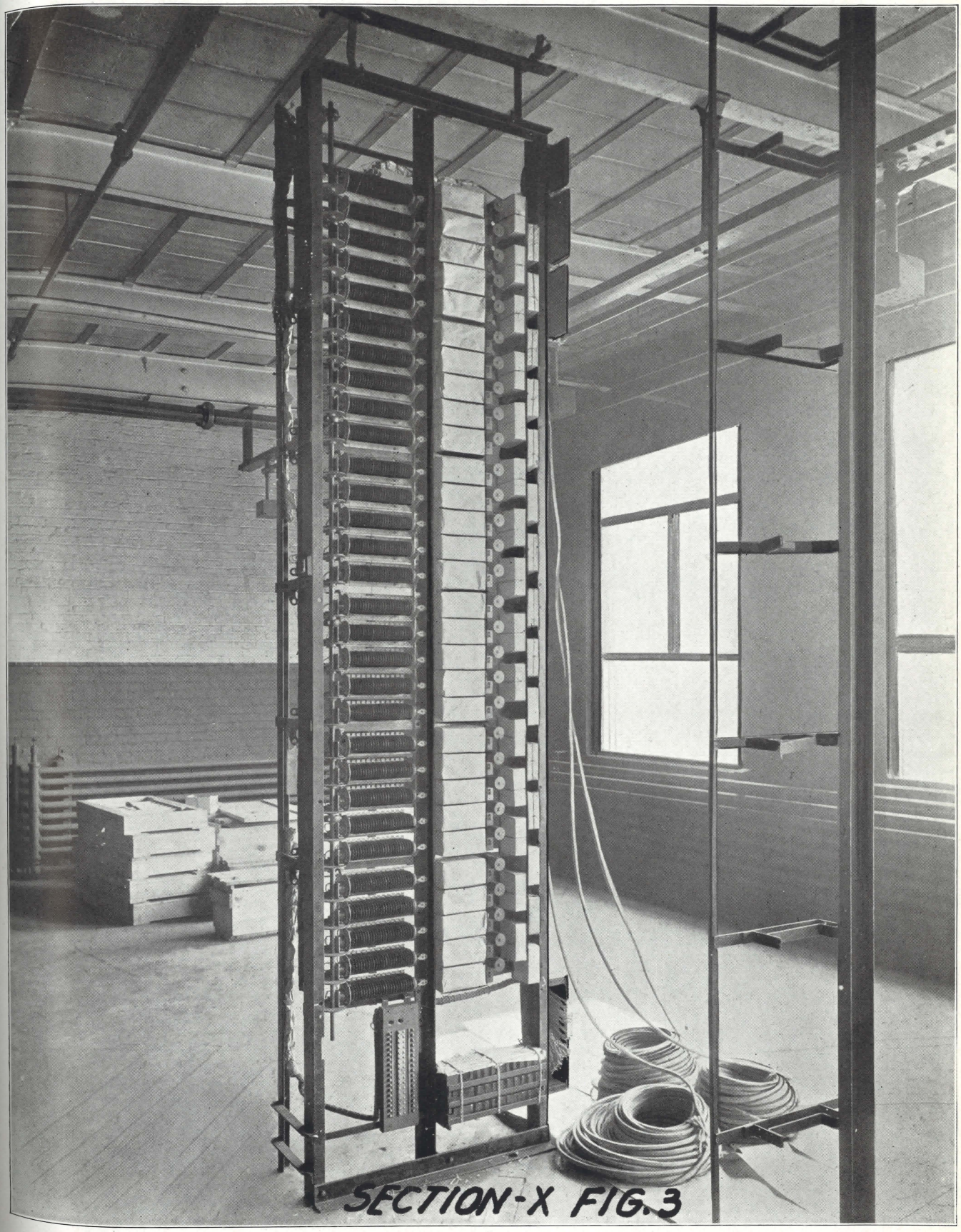
FIG. 1



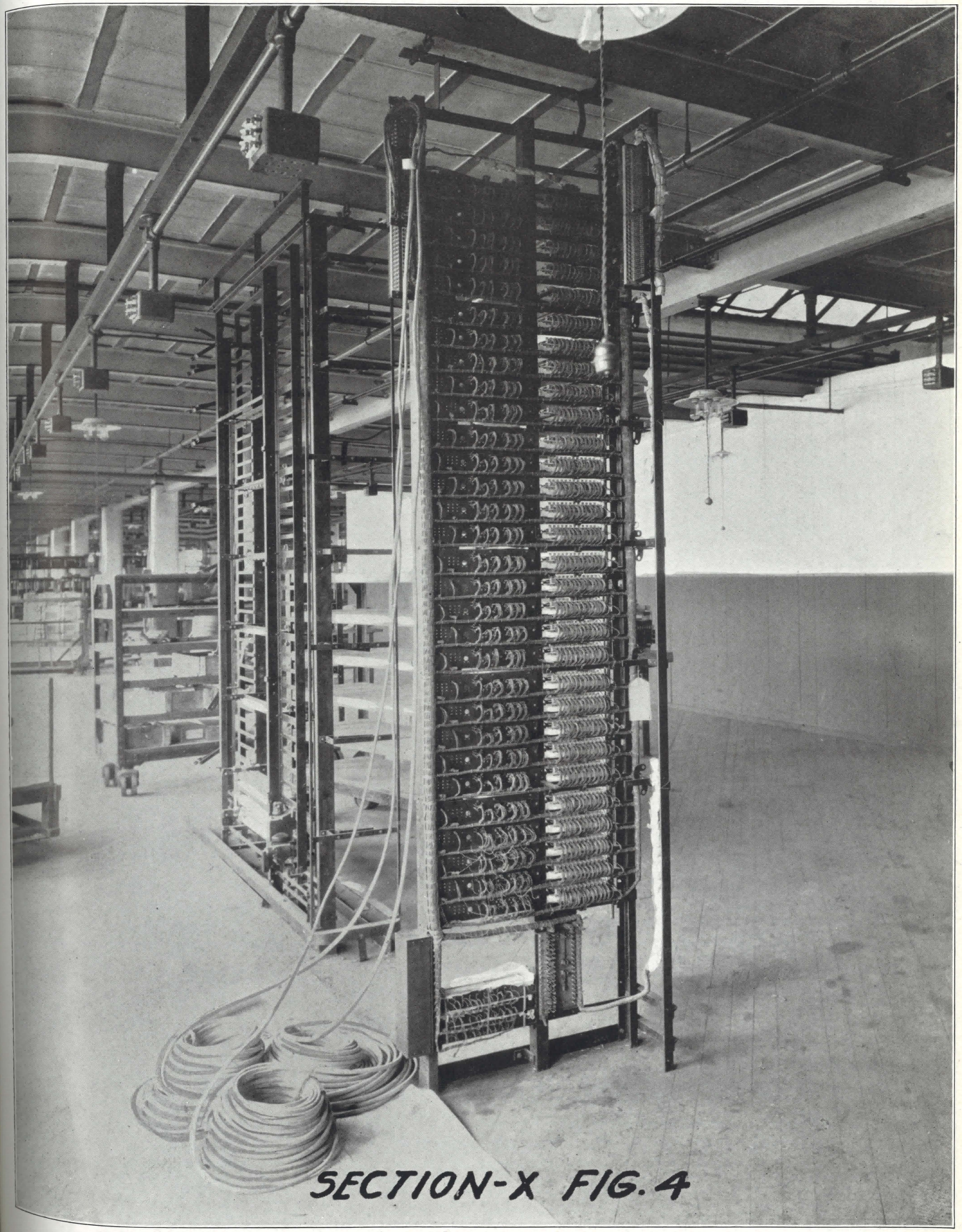
TOOLS AND GAUGES FOR MANUFACTURE OF MULTIPLE BRUSHES

SECTION X

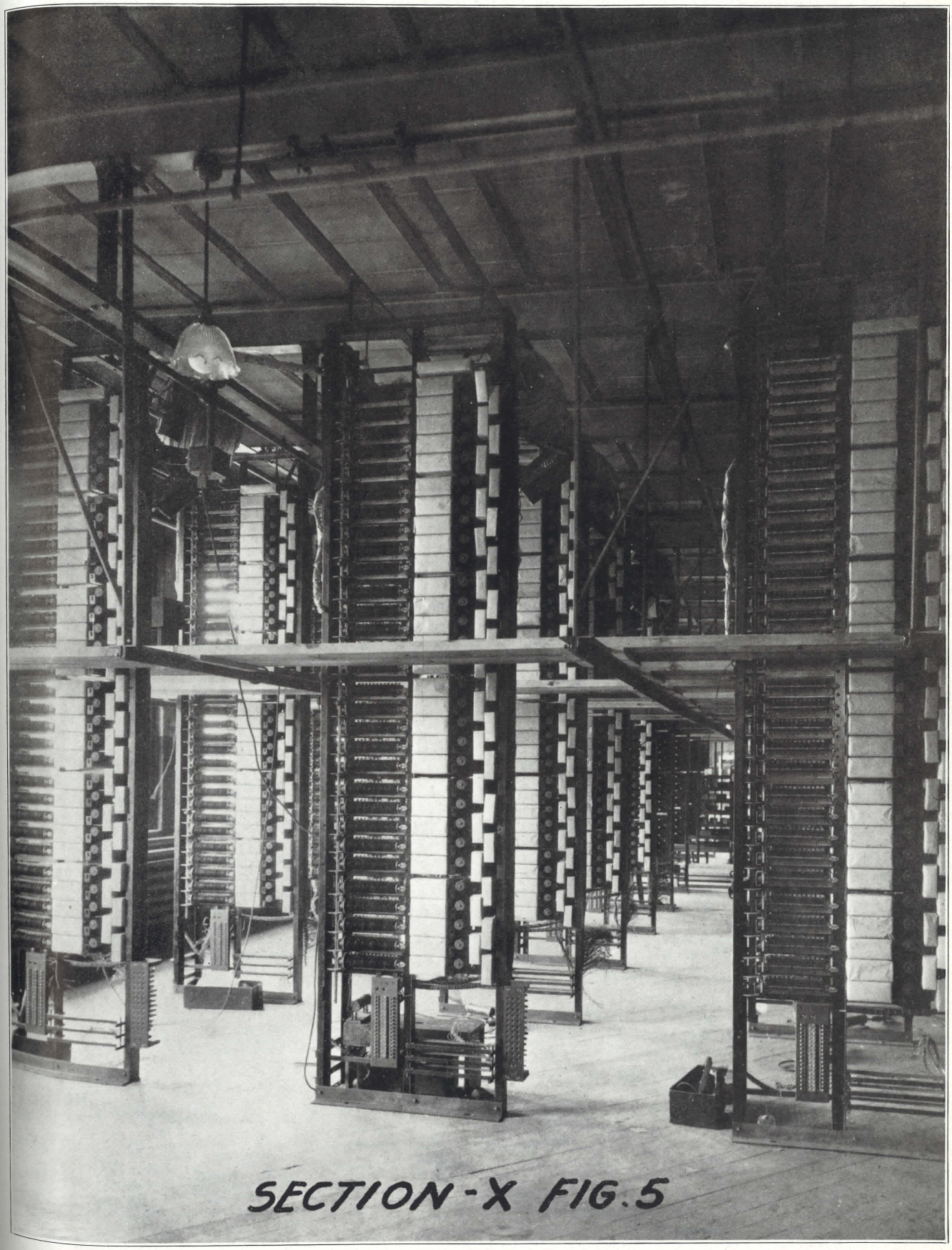
FIG 2



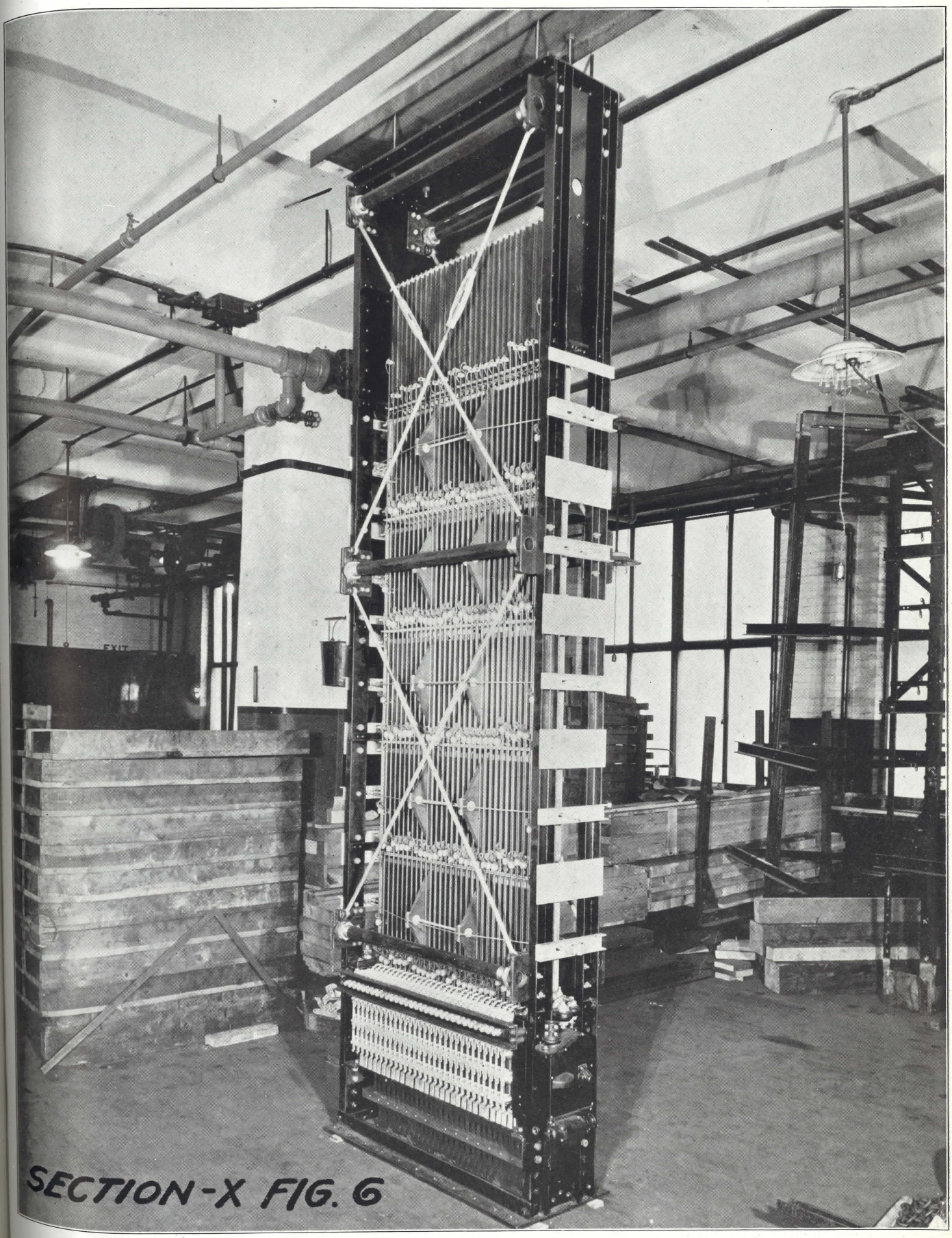
SECTION-X FIG.3



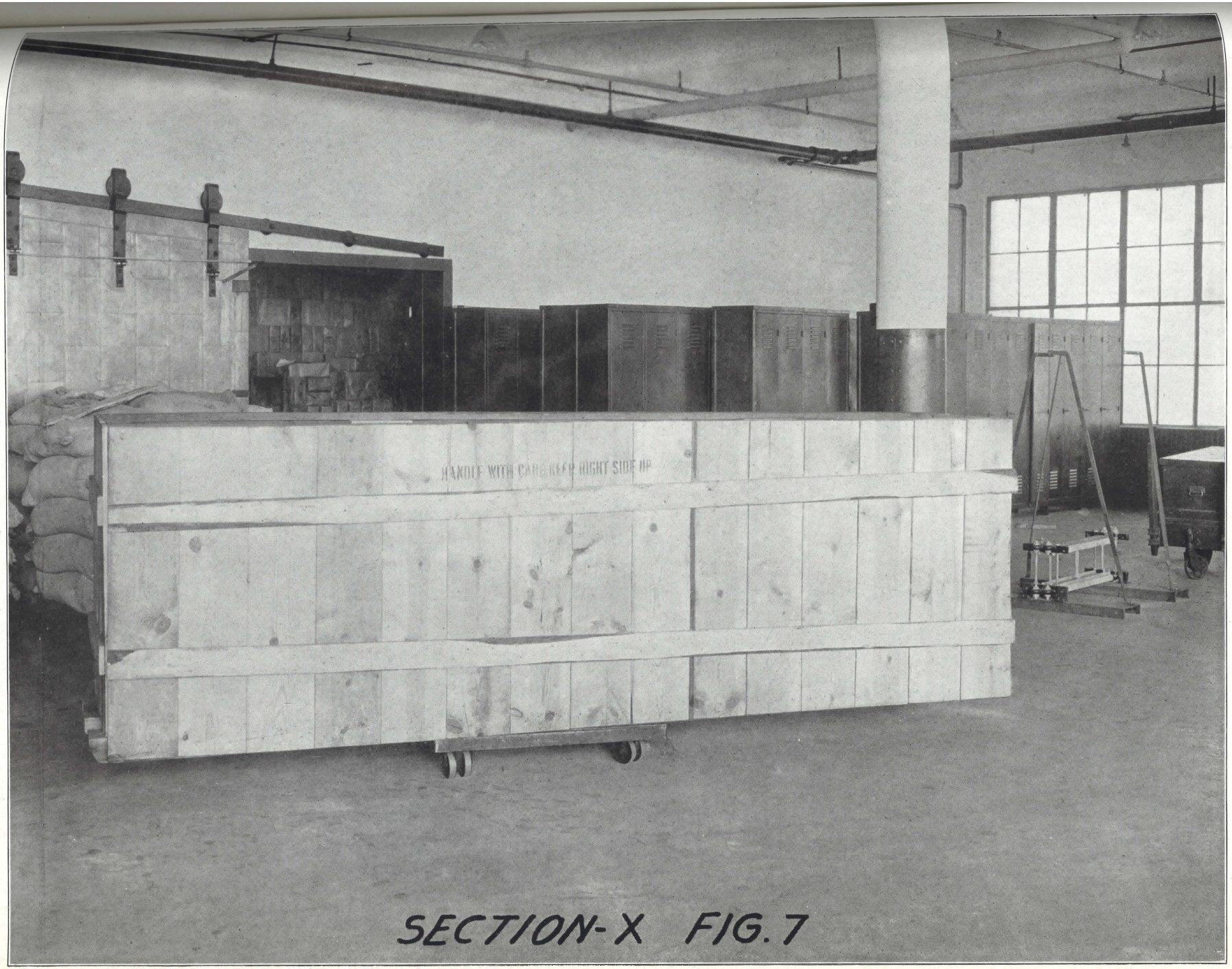
SECTION-X FIG. 4



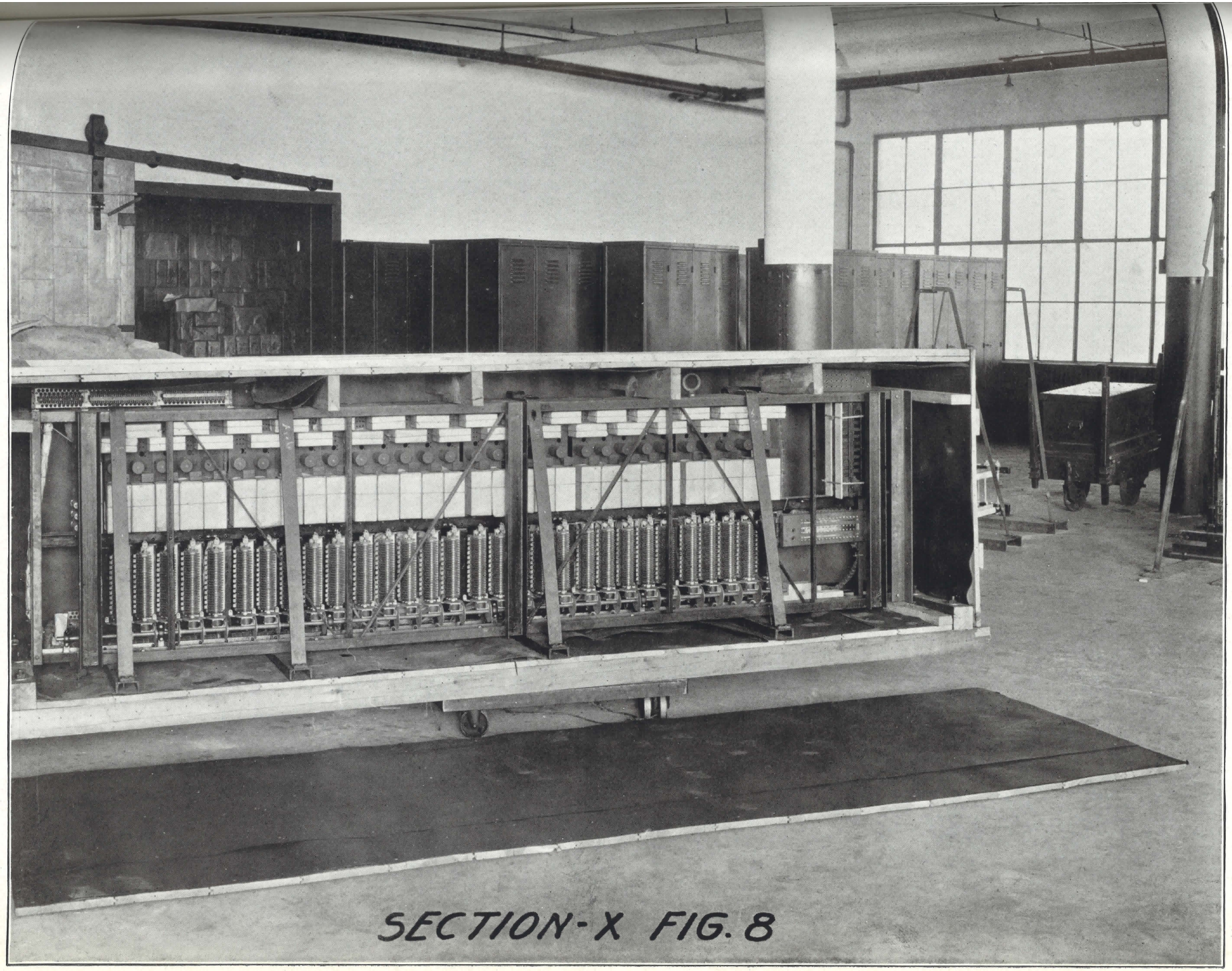
SECTION - X FIG. 5



SECTION-X FIG. 6



SECTION-X FIG. 7



SECTION-X FIG. 8

DIMENSIONS OF PACKED SELECTOR FRAMES FOR SHIPPING

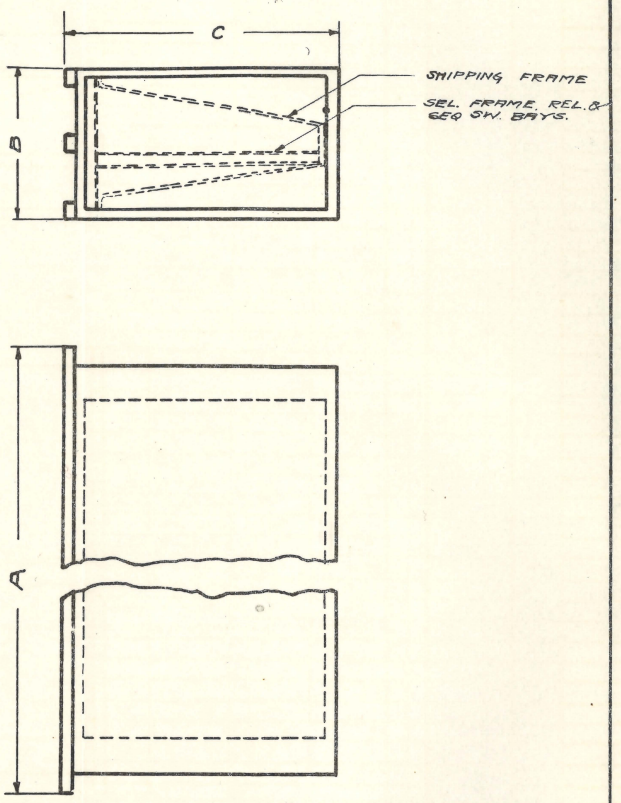
APPARATUS FRAME			WIDTH OF IRON SHIPPING FRAME	PACKING DIMENSIONS			APPROX. SHIPPING WEIGHT IN POUNDS
NAME	HEIGHT	WIDTH OF REL & SEQ SW BAYS		A	B *	C	
INCOMING	11'-6"	2'-4 3/16"	2'-4"	12'-7"	2'-7 1/4"	3'-4 3/16"	1300
INCOMING	11'-2"	2'-9 11/16"	2'-4	12'-3"	2'-7 1/4"	3'-9 13/16"	1300
INCOMING	11'-2"	2'-3 3/16"	2'-4	12'-3"	2'-7 1/4"	3'-3 7/16"	1300
INCOMING	11'-6"	2'-8 5/8"	2'-4	12'-7	2'-7 1/4"	3'-8 1/8"	1300
INCOMING	11'-6"	2'-5 11/16"	2'-4"	12'-7"	2'-7 1/4"	3'-5 15/16"	1300
INCOMING	11'-6"	2'-9 11/16"	2'-4"	12'-7"	2'-7 1/4"	3'-9 15/16"	1300
OFFICE	11'-6"	1'-7 3/16"	2'-4"	12'-7"	2'-7 1/4"	2'-7 3/16"	1000
OFFICE	11'-2"	1'-7 3/16"	2'-4"	12'-3"	2'-7 1/4"	2'-7 3/16"	1000
DISTRICT (REGULAR)	11'-6"	2'-9 3/16"	2'-4"	12'-7"	2'-7 1/4"	3'-9 9/16"	1400
DISTRICT (REGULAR)	11'-2"	2'-9 3/16"	2'-4"	12'-3"	2'-7 1/4"	3'-9 3/16"	1400
DISTRICT (2 PART MESS RATE)	11'-6"	3'-9 11/16"	2'-4"	12'-7"	2'-7 1/4"	4'-9 15/16"	2100
DISTRICT (A POS)	11'-6"	3'-2 11/16"	2'-4"	12'-7"	2'-7 1/4"	4'-2 15/16"	1500
FINAL	11'-6"	2'-0 11/16"	2'-4	12'-7"	2'-7 1/4"	3'-0 15/16"	1350
FINAL	11'-2"	2'-0 11/16"	2'-4"	12'-3"	2'-7 1/4"	3'-0 15/16"	1350
MAKE BUSY	11'-6"	2'-2 11/16"	1'-8"	12'-7"	1'-11 1/4"	3'-2 15/16"	1000
MAKE BUSY	11'-2"	2'-2 11/16"	1'-8"	12'-3"	1'-11 1/4"	3'-2 15/16"	1000
B SENDER AND	11'-6"	6'-3"	2'-10"	12'-7"	3'-1 1/4"	7'-3 1/4"	3500
SENDER SELECTOR	11'-2"	6'-3"	2'-10"	12'-3"	3'-1 1/4"	7'-3 1/4"	3500
SUBS SENDER (10 CCTS) (2 DIGIT CODE)	11'-2"	6'-3 3/4"	2'-10"	12'-3"	3'-1 1/4"	7'-6"	2500
SUBS SENDER (6 CCTS) (3 DIGIT CODE)	11'-6"	5'-3"	2'-10"	12'-7"	3'-1 1/4"	6'-3 1/4"	2500
LOCAL SENDER (6 CCTS) (3 DIGIT CODE)	11'-6"	5'-3"	2'-10"	12'-7"	3'-1 1/4"	6'-3 1/4"	2000
A POS SENDER AND	#11'-6"	2'-6 3/16"	2'-4"	12'-7"	2'-7 1/4"	3'-6 9/16"	1500
SENDER SELECTOR-3 POS	#11'-6"	4'-0 3/8"	2'-10"	12'-7"	3'-1 1/4"	5'-0 5/8"	2000
A POS SENDER AND	#11'-2"	2'-6 3/16"	2'-4"	12'-3	2'-7 1/4"	3'-6 9/16"	1500
SENDER SELECTOR (3 POS)	#11'-2"	4'-0 3/8"	2'-10"	12'-3"	3'-1 1/4"	5'-0 5/8"	2000
LINE FINDER	11'-2"	1'-1 1/4"	2'-4"	12'-3"	2'-7 1/4"	2'-1 1/2"	1500
LINE FINDER	11'-6"	1'-1 1/4"	2'-4"	12'-7"	2'-7 1/4"	2'-1 1/2"	1500
TRANSLATOR LAMP PANEL	12'-0"	2'-1"	2'-10"	13'-1"	3'-1 1/4"	3'-1 1/4"	1000
MISC POWER DRIVEN APP	11'-2	1'-11"	2'-4"	12'-3"	2'-7 1/4"	2'-4 1/16"	1000

NOTE:
DRIVE, MULT. BANKS ETC.
SHIPPED SEPARATE FOR PRESENT

* REMOVAL OF CLEATS WILL REDUCE THESE DIMENSIONS 1 3/8"

\# FRAME ASSEMBLED IN 2 PARTS.

DIMENSIONS & SHIPPING WEIGHT OF PACKING CASES	ES-225093 ISSUE:- [redacted]	WESTERN ELECTRIC CO. INC. PACKING CASE DATA SHEET #1

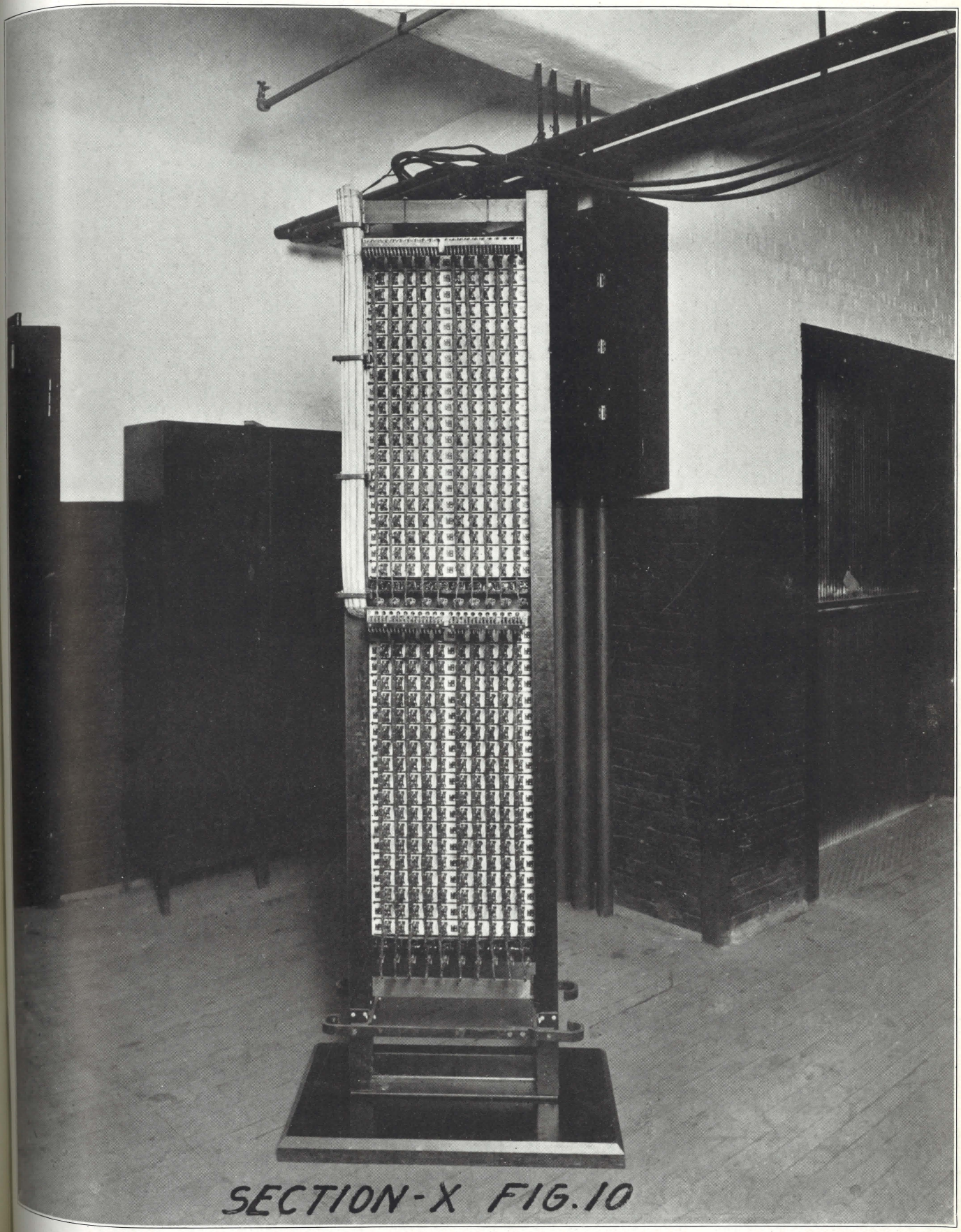


A = HEIGHT OF FRAME +1'-1" APP
B = 3'-0" MAX. FOR OPENING 3'-6" WIDE
C. FLOOR LENGTH OF FRAME+1'-0 1/4" - MAX. 7'-6"

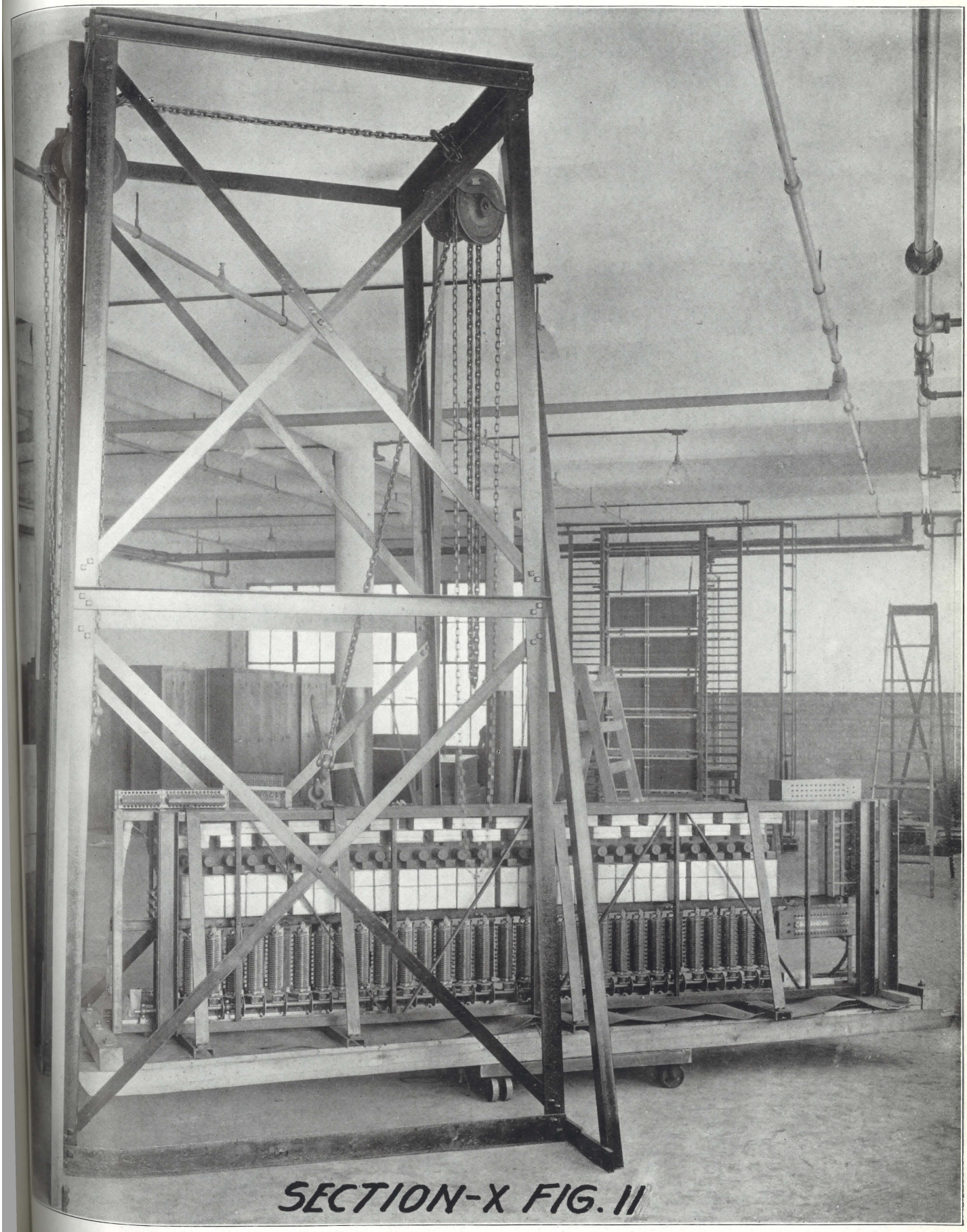
DIMENSIONS & SHIPPING WEIGHT. OF PACKING CASES	ES-225093 ISSUE:- [redacted]	WESTERN ELECTRIC CO. INC PACKING CASE DATA SHEET #2

PACKING CASES
TABLE OF SIZES AND SHIPPING WEIGHTS
OF ASSEMBLED OR PARTIALLY ASSEMBLED FRAMES
FULL MECHANICAL POWER DRIVEN SYSTEM

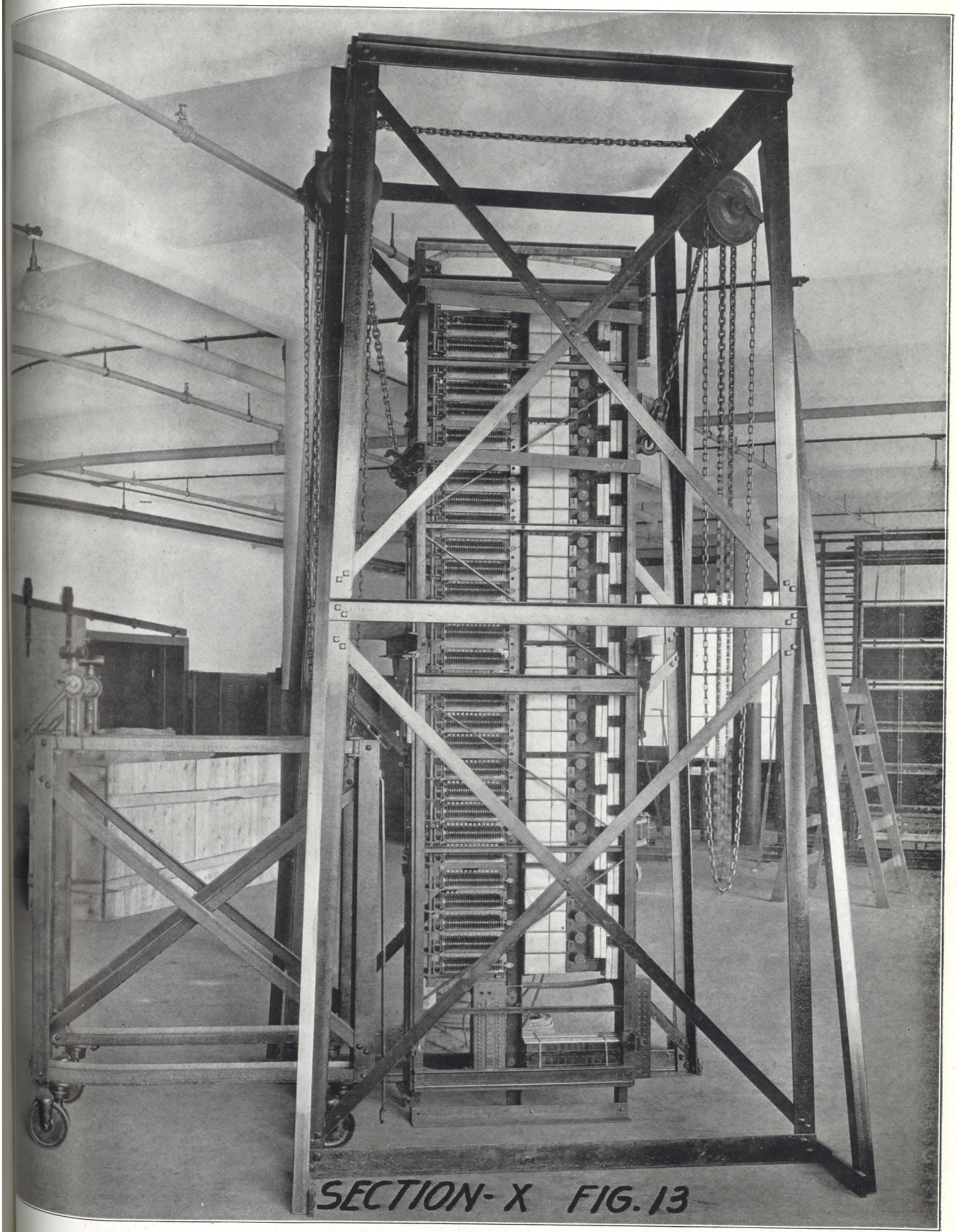
SECTION-X
FIG-9



SECTION-X FIG. 10



SECTION-X FIG. 11

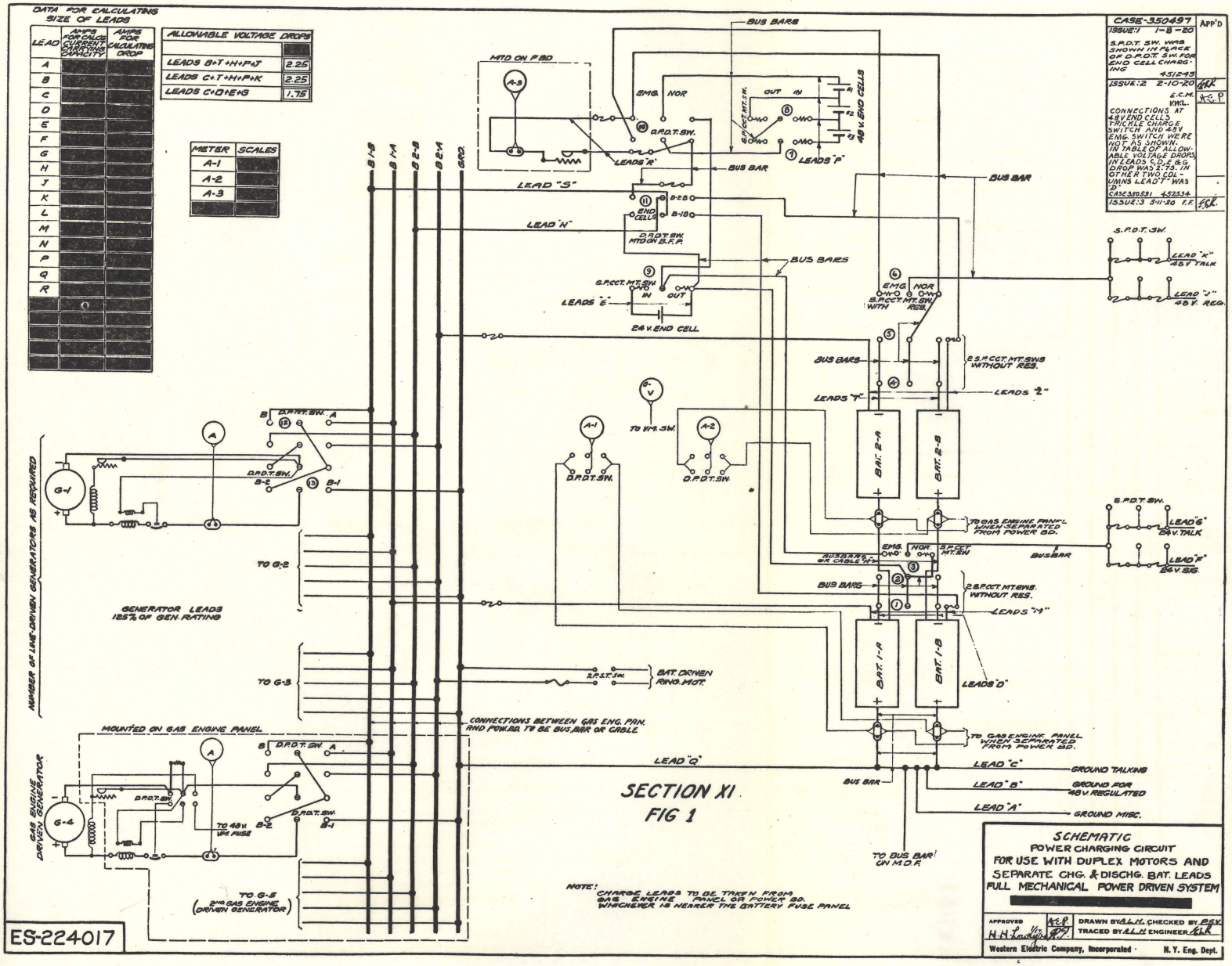


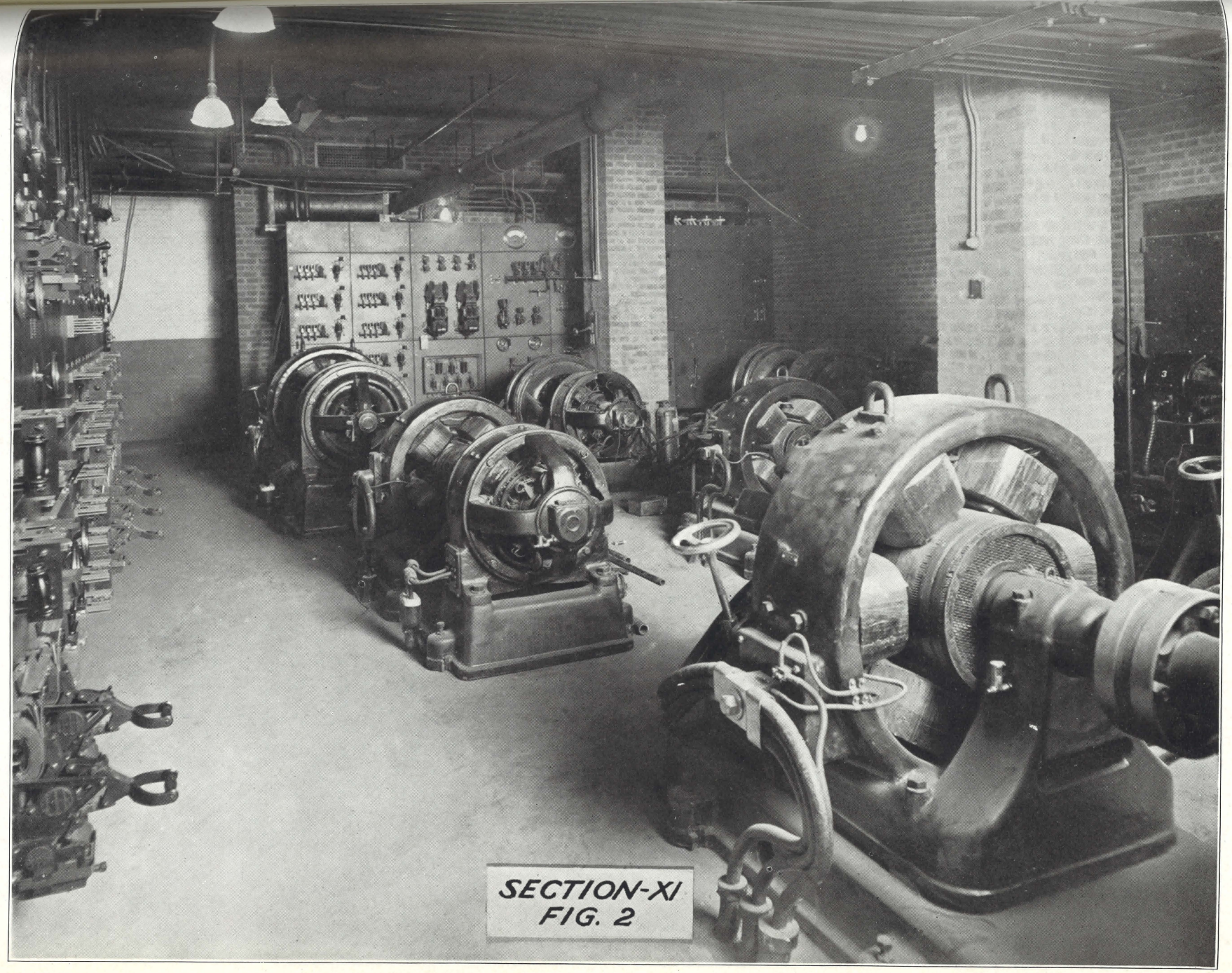
SECTION-X FIG. 13

SECTION-X FIG. 14

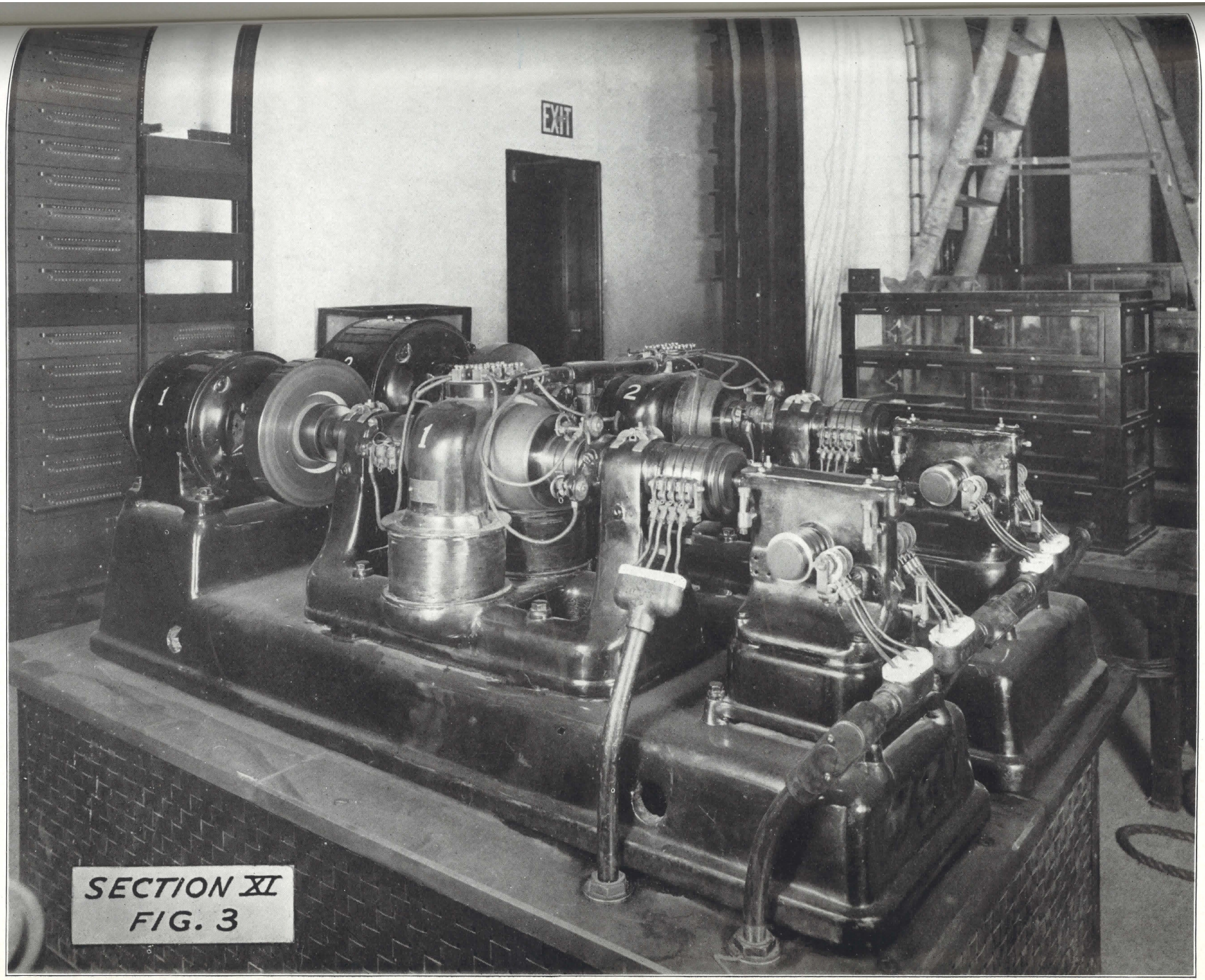
Section XI

Power Equipment

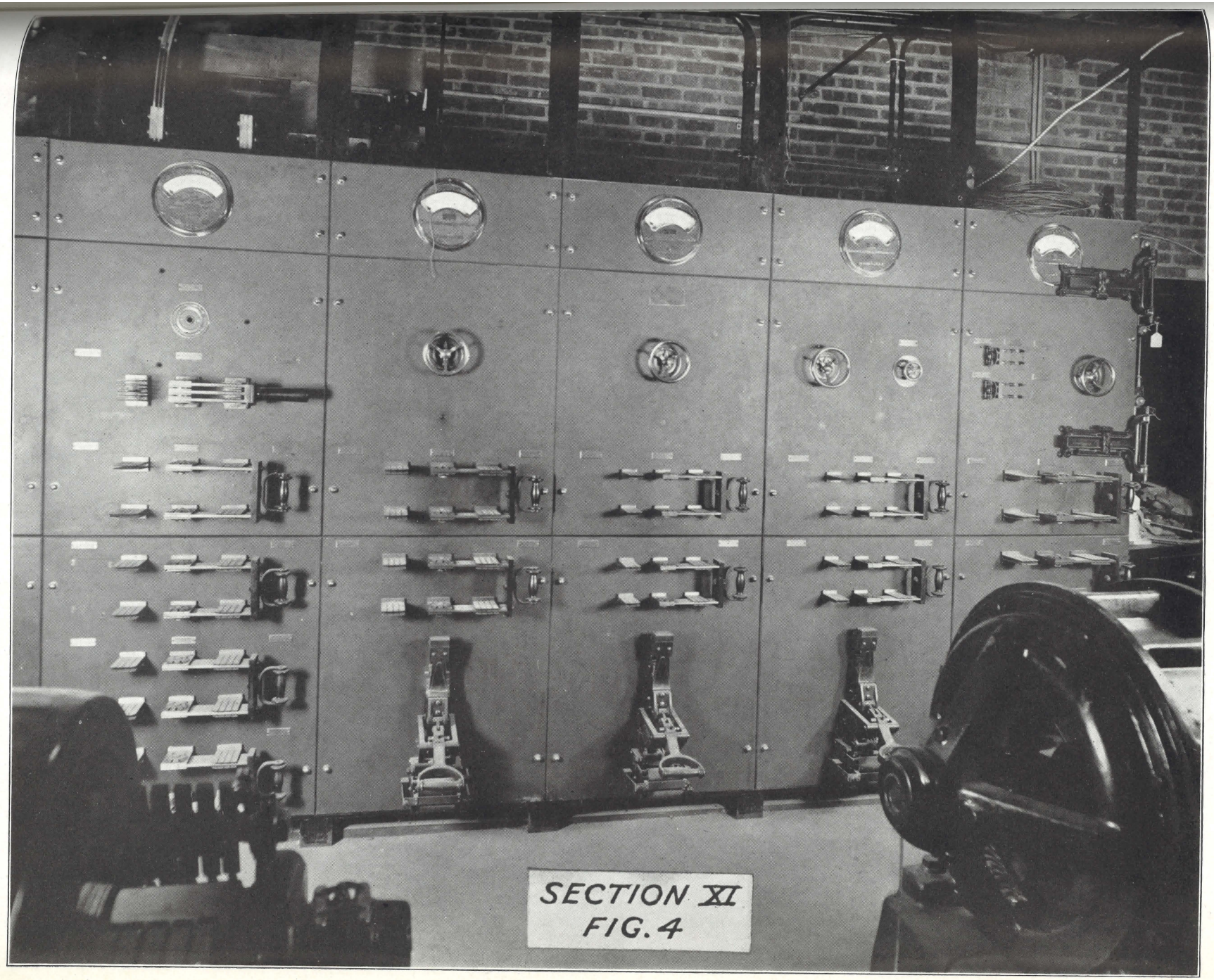

DATA FOR CALCULATING SIZE OF LEADS
LEAD
AMPS FOR CALCS. CURRENT CARRYING CAPACITY
AMPS FOR CALCULATING DROP
A
B
C
D
E
F
G
H
J
K
L
M
N
P
Q
R
ALLOWABLE VOLTAGE DROPS
LEADS B+T+H+P+J 2.25
LEADS C+T+H+P+K 2.25
LEADS C+O+E+G 1.75
METER SCALES
A-1
A-2
A-3
CASE-350497 APP'D
ISSUE:1 1-8-20
S.P.D.T. SW. WAS SHOWN IN PLACE OF D.P.D.T. SW. FOR END CELL CHARGING 45243
ISSUE:2 2-10-20 E.C.M. Y.W.L.
CONNECTIONS AT 48 V. END CELLS, TRICKLE CHARGE SWITCH AND 48 V. ENG. SWITCH WERE NOT AS SHOWN. IN TABLE OF ALLOWABLE VOLTAGE DROPS, IN LEADS C,D,E & G, DROP WAS 2.75. IN OTHER TWO COLUMNS LEAD "T" WAS "B".
CASE 350531 4-52534
ISSUE:3 3-11-20 F.F.
BUS BARS
MTD ON P.BD
A-3
EMG. NOR
D.P.D.T. SW.
LEADS "E"
LEADS "F"
48 V. END CELLS
S.P.CCT. MT. SW.
OUT IN
BUS BAR
LEAD "S"
LEAD "N"
11 END CELLS
B-2.5
B-1.5
D.P.D.T. SW. MTD ON S.P.A.
BUS BARS
S.P.CCT. MT. SW.
OUT IN
LEADS "E"
24 V. END CELL
EMG. NOR
S.P.CCT. MT. SW. WITH RES.
S.P.D.T. SW.
LEAD "K" 48 V. TALK
LEAD "J" 48 V. REG.
BUS BARS
2 S.P.CCT. MT. SWS WITHOUT RES.
LEADS "T"
LEADS "2"
A-1
A-2
D.P.D.T. SW.
TO V.M. SW.
BAT. 2-A
BAT. 2-B
TO GAS ENGINE PANEL WHEN SEPARATED FROM POWER BD.
S.P.D.T. SW.
LEAD "G" 24 V. TALK
LEAD "F" 24 V. SIG.
EMG. NOR S.P.CCT. MT. SW
BUS BAR
BUS BARS OR CABLE "H"
BUS BARS
2 S.P.CCT. MT. SWS. WITHOUT RES.
LEADS "1"
BAT. 1-A
BAT. 1-B
LEADS "D"
TO GAS ENGINE PANEL WHEN SEPARATED FROM POWER BD.
LEAD "C" GROUND TALKING
LEAD "B" GROUND FOR 48 V. REGULATED
LEAD "A" GROUND MISC.
BUS BAR
TO BUS BAR ON M.D.F.
NUMBER OF LINE-DRIVEN GENERATORS AS REQUIRED
G-1
D.P.D.T. SW. A
D.P.D.T. SW. B-2
B-1
TO G-2
GENERATOR LEADS 125% OF GEN. RATING
TO G-3
S.P.S.T. SW.
BAT. DRIVEN RING. MOT.
CONNECTIONS BETWEEN GAS ENG. PAN. AND POW. BD. TO BE BUS BAR OR CABLE
MOUNTED ON GAS ENGINE PANEL
GAS ENGINE DRIVEN GENERATOR
G-4
D.P.D.T. SW. A
D.P.D.T. SW. B-2
D.P.D.T. SW. B-1
TO 48 V. V.M. FUSE
TO G-5 2ND GAS ENGINE (DRIVEN GENERATOR)
NOTE: CHARGE LEADS TO BE TAKEN FROM GAS ENGINE PANEL OR POWER BD. WHICHEVER IS NEARER THE BATTERY FUSE PANEL
SECTION XI
FIG 1
SCHEMATIC
POWER CHARGING CIRCUIT
FOR USE WITH DUPLEX MOTORS AND SEPARATE CHG. & DISCHG. BAT. LEADS
FULL MECHANICAL POWER DRIVEN SYSTEM
APPROVED H.M.L.
DRAWN BY A.L.H. CHECKED BY B.S.V.
TRACED BY A.L.H. ENGINEER Y.L.R.
Western Electric Company, Incorporated · N.Y. Eng. Dept.
ES-224017



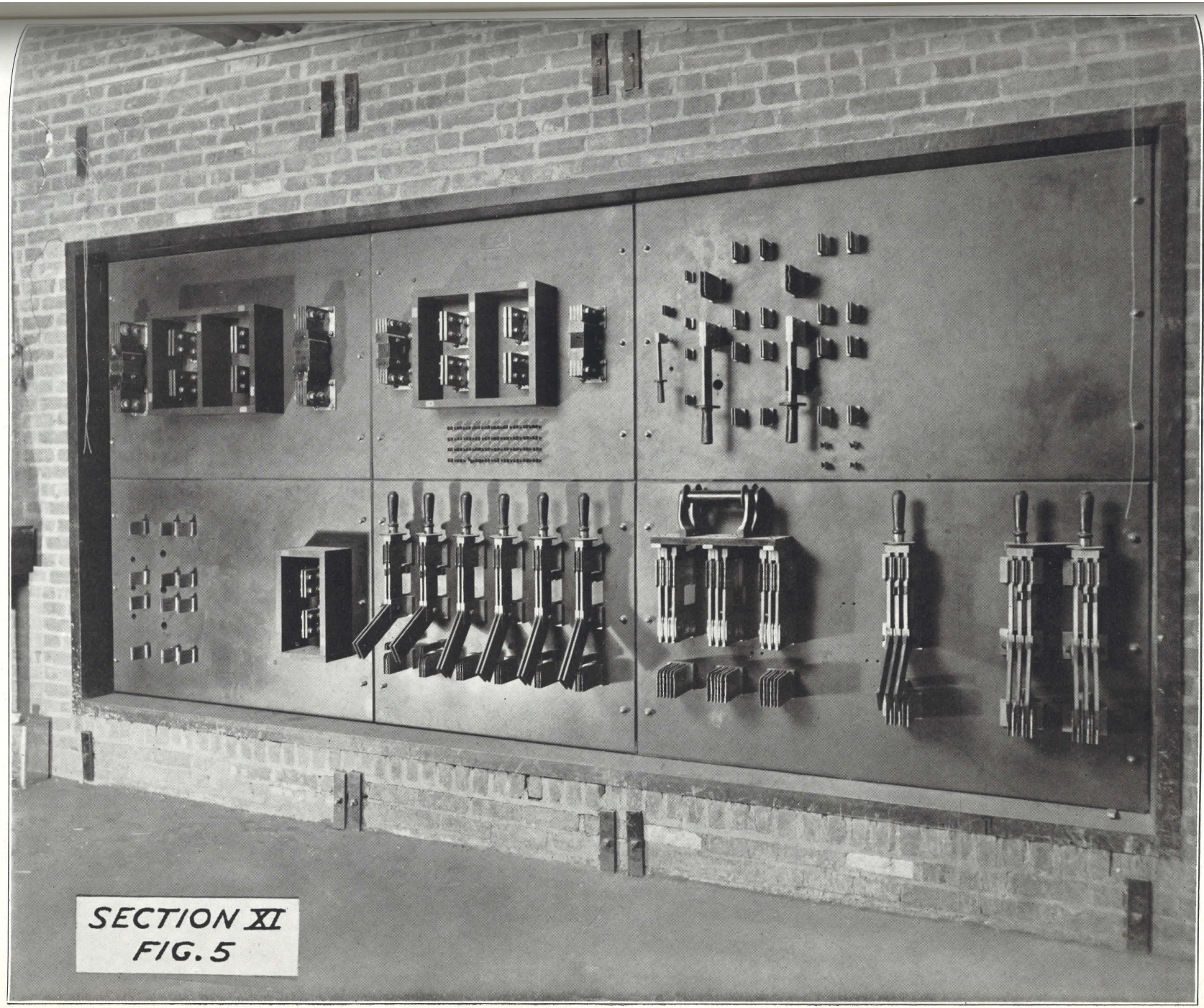
SECTION-XI
FIG. 2



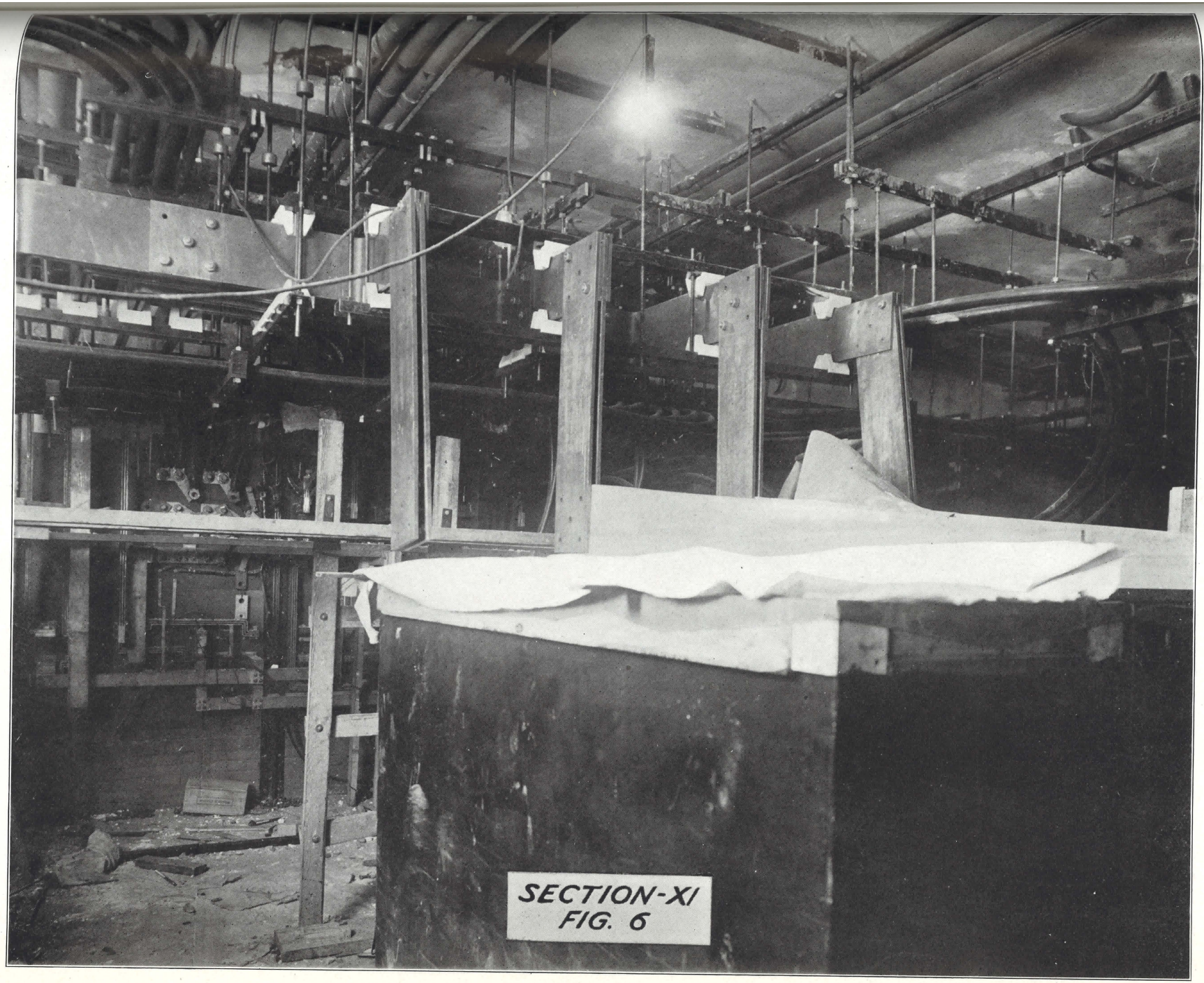
SECTION XI
FIG. 3

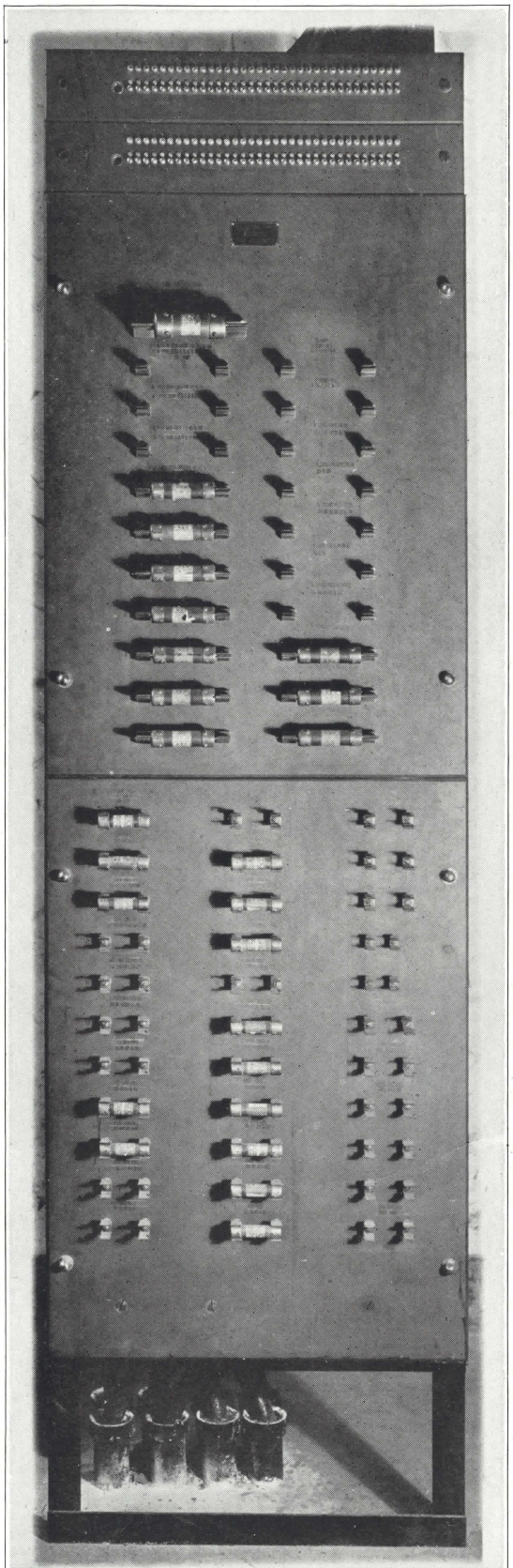


SECTION XI
FIG. 4



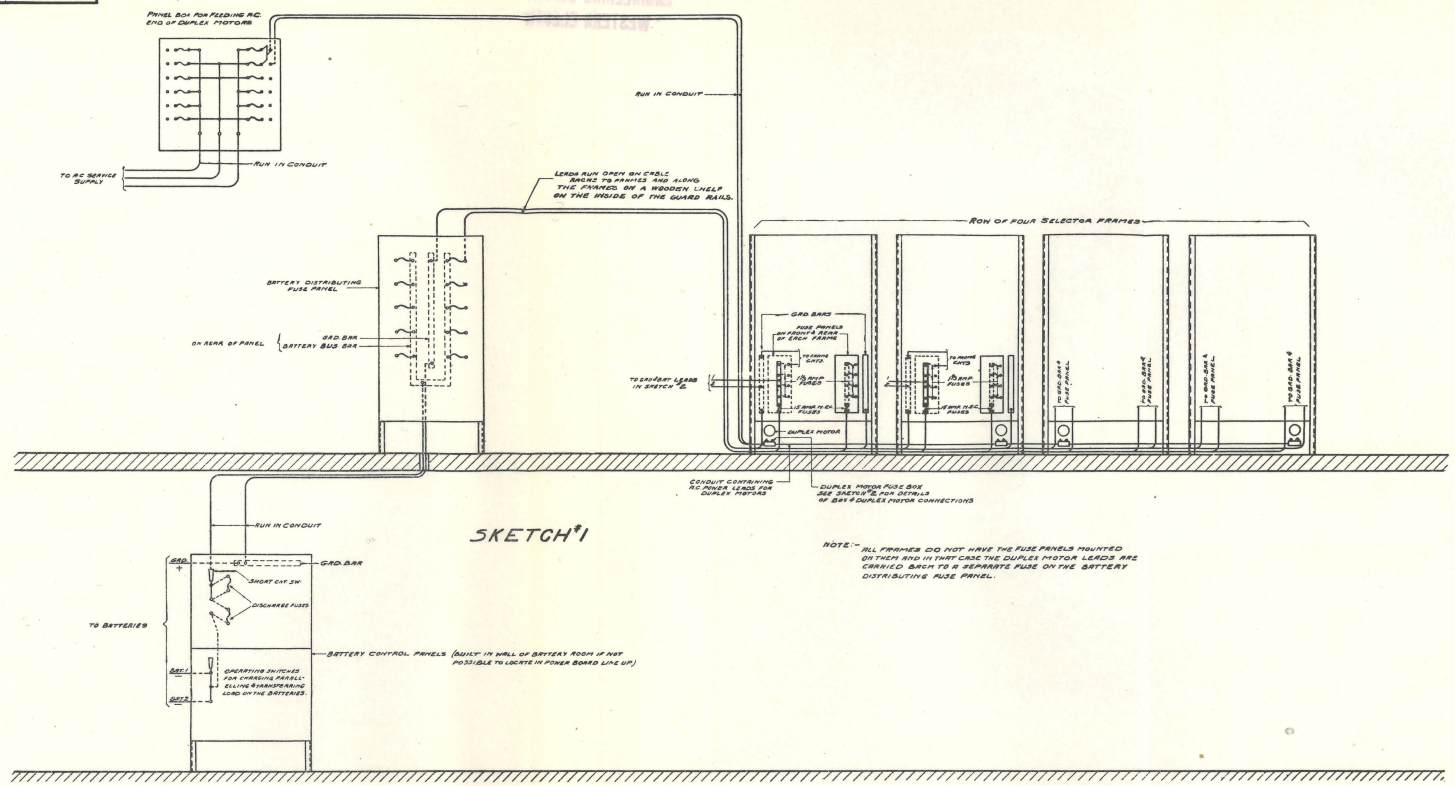
SECTION XI
FIG. 5


SECTION-XI
FIG. 6



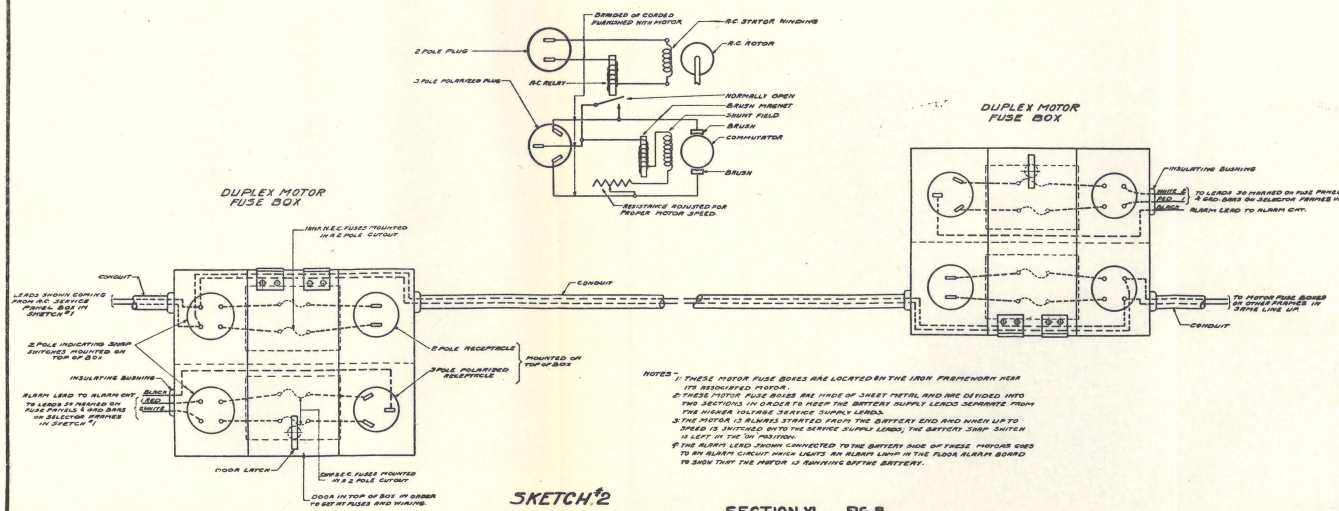
SECTION - XI
FIG. 7

ES-249202



SKETCH #1

NOTE:- ALL FRAMES DO NOT HAVE THE FUSE PANELS MOUNTED ON THEM AND IN THAT CASE THE DUPLEX MOTOR LEADS ARE CARRIED BACK TO A SEPARATE FUSE ON THE BATTERY DISTRIBUTING FUSE PANEL.



SKETCH #2

NOTES:
1. THESE MOTOR FUSE BOXES ARE LOCATED ON THE IRON FRAMEWORK NEAR ITS ASSOCIATED MOTOR.
2. THESE MOTOR FUSE BOXES ARE MADE OF SHEET METAL AND ARE DIVIDED INTO TWO SECTIONS IN ORDER TO KEEP THE BATTERY SUPPLY LEADS SEPARATE FROM THE HIGHER VOLTAGE SERVICE SUPPLY LEADS.
3. THE MOTOR IS ALWAYS STARTED FROM THE BATTERY END AND WHEN UP TO SPEED IS SWITCHED ONTO THE SERVICE SUPPLY LEADS, THE BATTERY SNAP SWITCH IS LEFT IN THE "ON" POSITION.
4. THE ALARM LEAD SHOWN CONNECTED TO THE BATTERY SIDE OF THESE MOTORS GOES TO AN ALARM CIRCUIT WHICH LIGHTS AN ALARM LAMP IN THE FLOOR ALARM BOARD TO SHOW THAT THE MOTOR IS RUNNING ON THE BATTERY.

SECTION XI FIG. 8

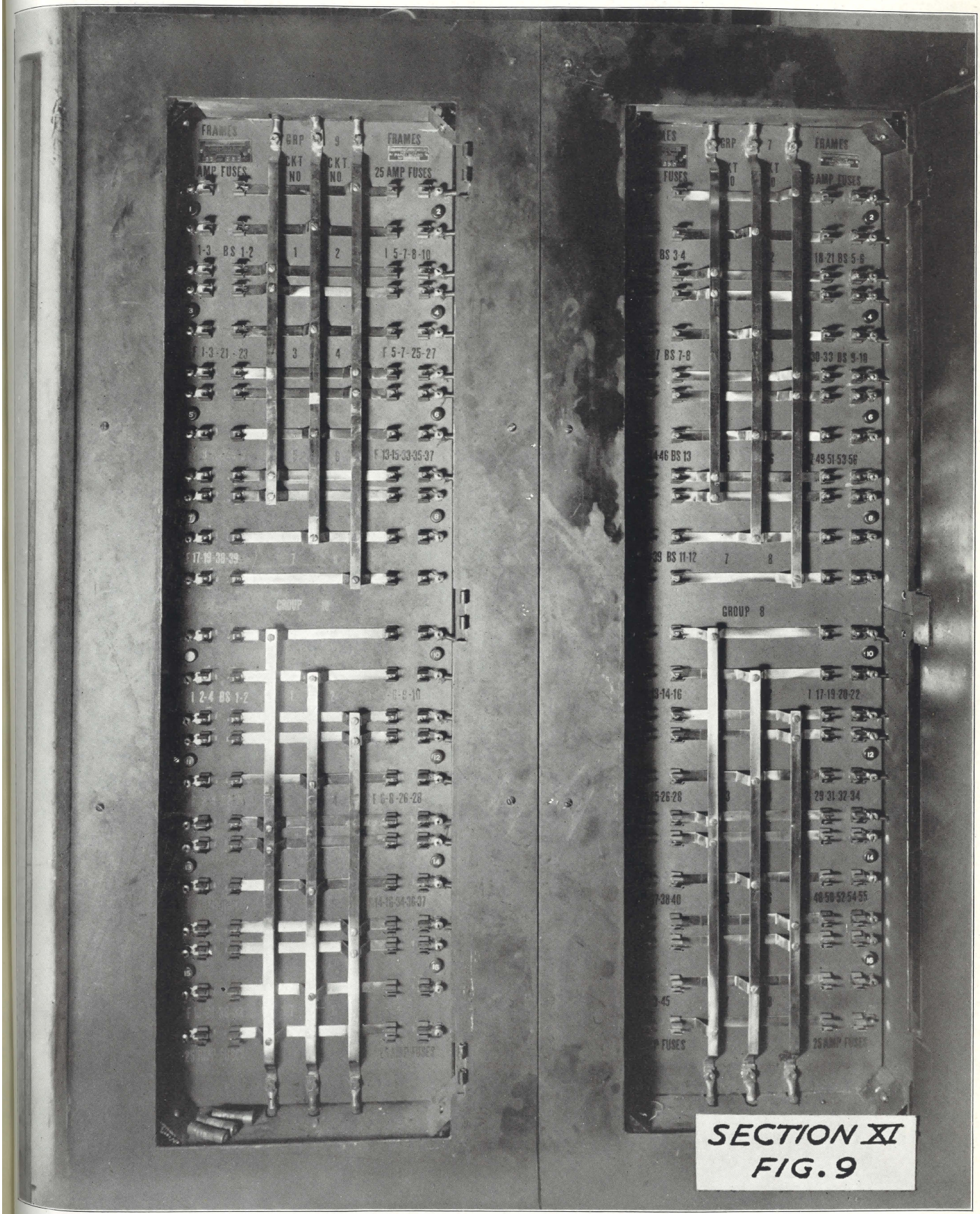
CASE: 395054 ISSUE: 1 3-18-41 APP'D

INFORMATION DRAWING
SHOWING
LAYOUT AND EQUIPMENT ARRANGEMENT OF BATTERY DISTRIBUTION TO SELECTOR FRAMES AND DRIVE MOTORS
FULL MECHANICAL POWER DRIVEN SYSTEM

APPROVED E.T.B. R.L.L. R.L.G.
DRAWN BY G.E.R.
CHECKED BY B.K.
WESTERN ELECTRIC CO., INC., N.Y. ENG. DEPT.

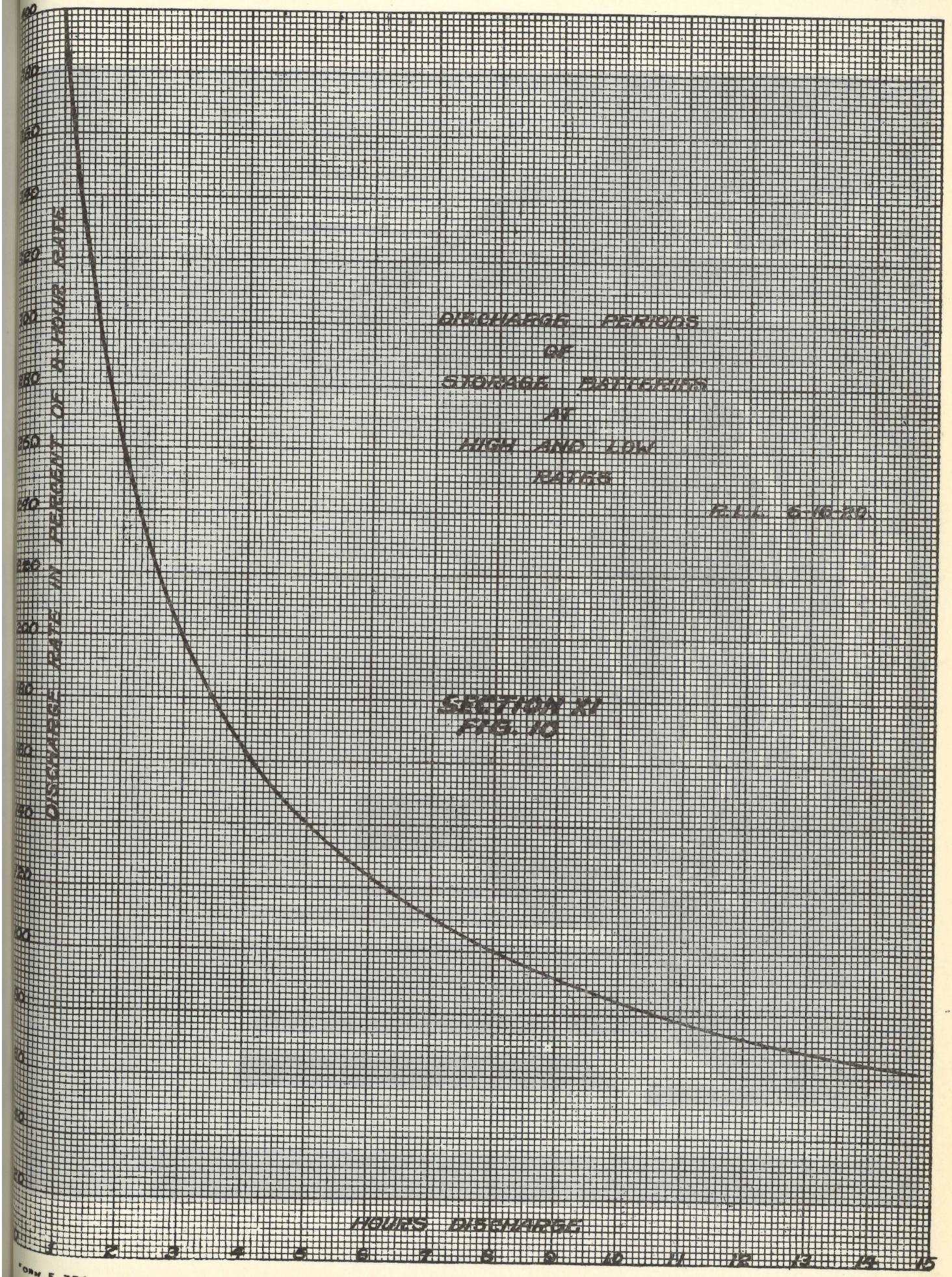
ES-249202
R

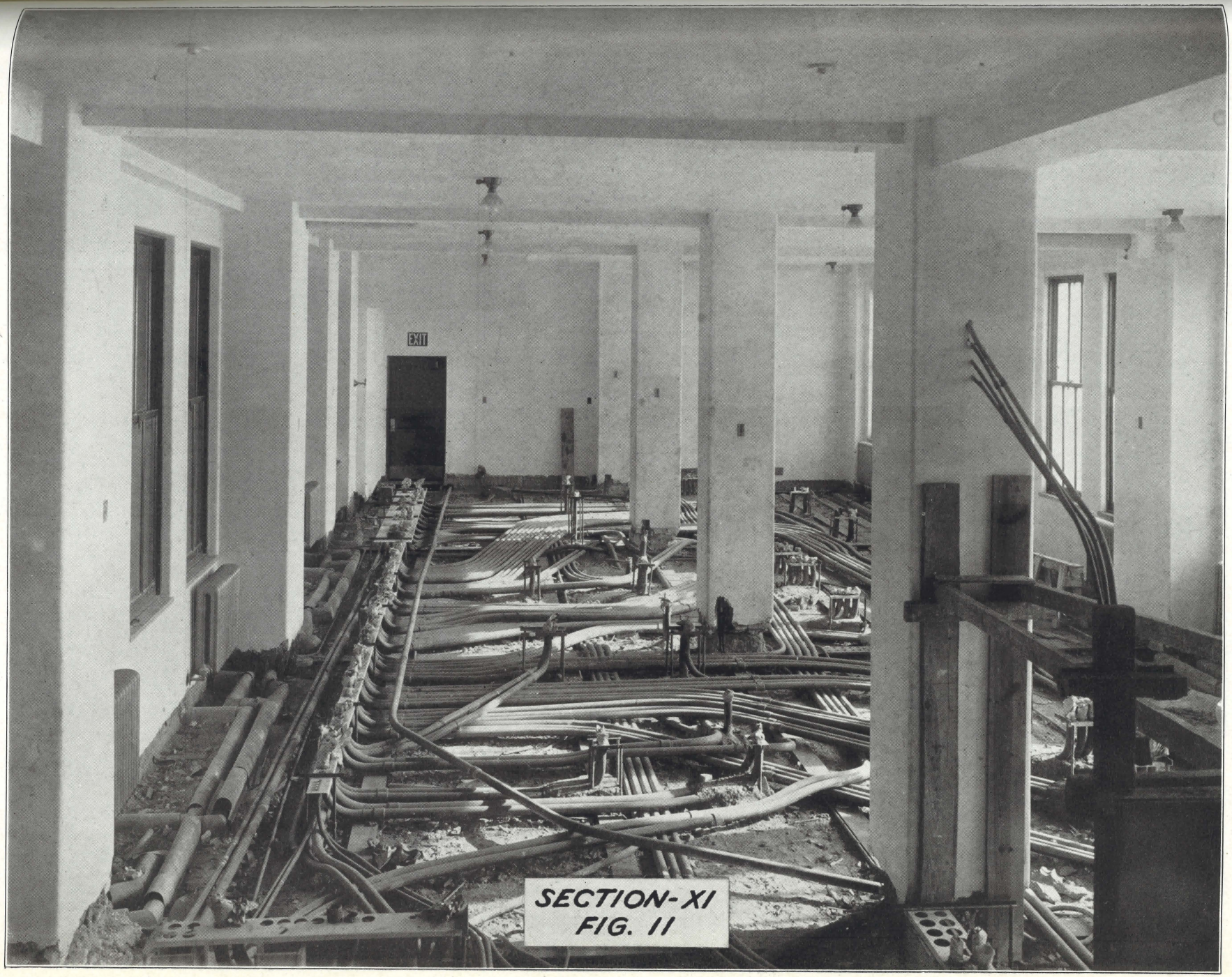
ES-249202


FRAMES
GRP
CKT NO
FRAMES
25 AMP FUSES
1-3 BS 1-2
1
2
1 5-7-8-10
F 1-3-21-23
3
4
F 5-7-25-27
F 13-15-33-35-37
GROUP 7
GROUP 8
1 2-4 BS 1-2
1 17-19-20-22
29-31-32-34
40-50-52-54-55
SECTION XI
FIG. 9

ESTERN ELECTRIC COMPANY, INCORPORATED
ENGINEERING DEPARTMENT
NEW YORK, U. S. A.

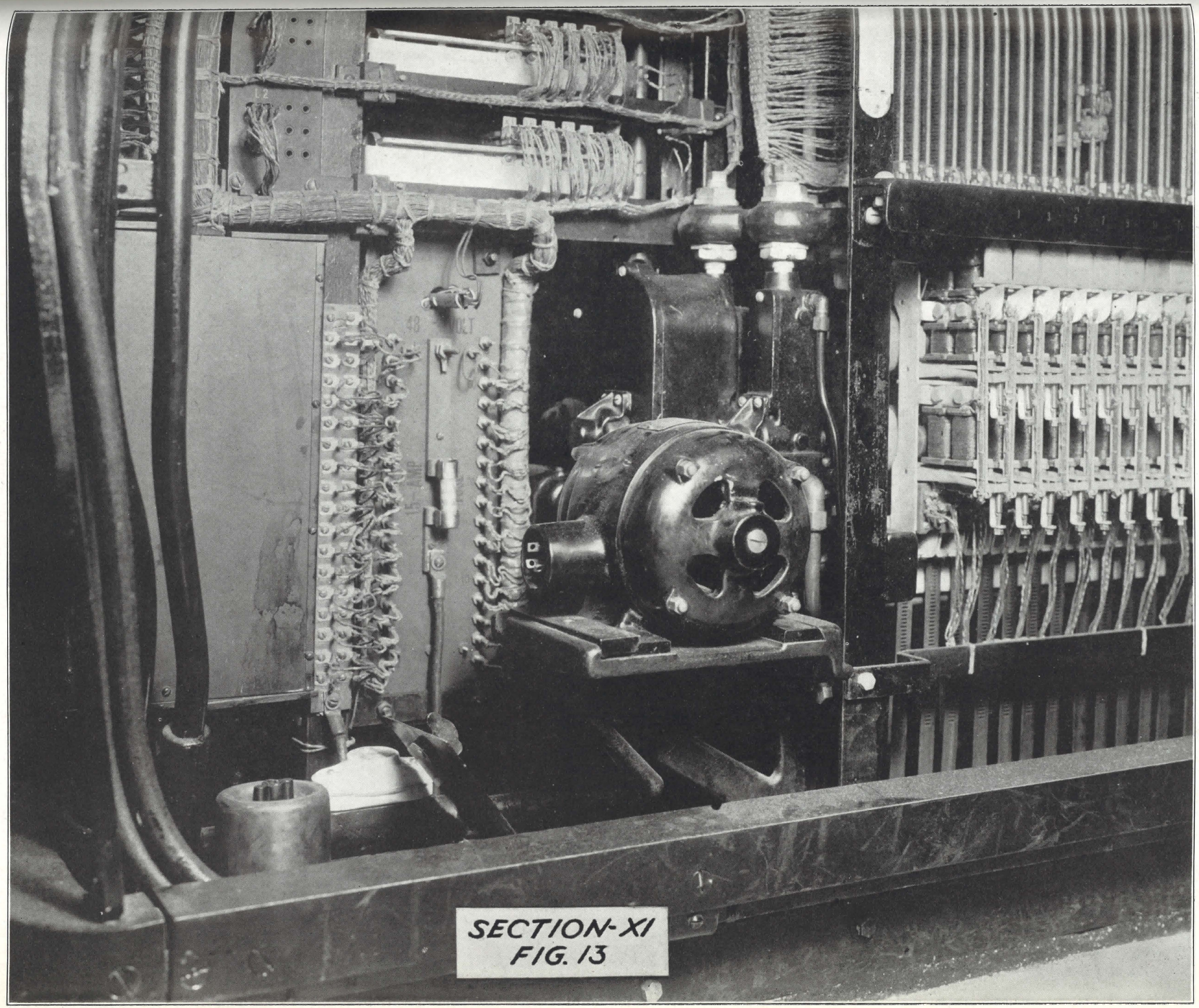
Sketch No. ES-224065



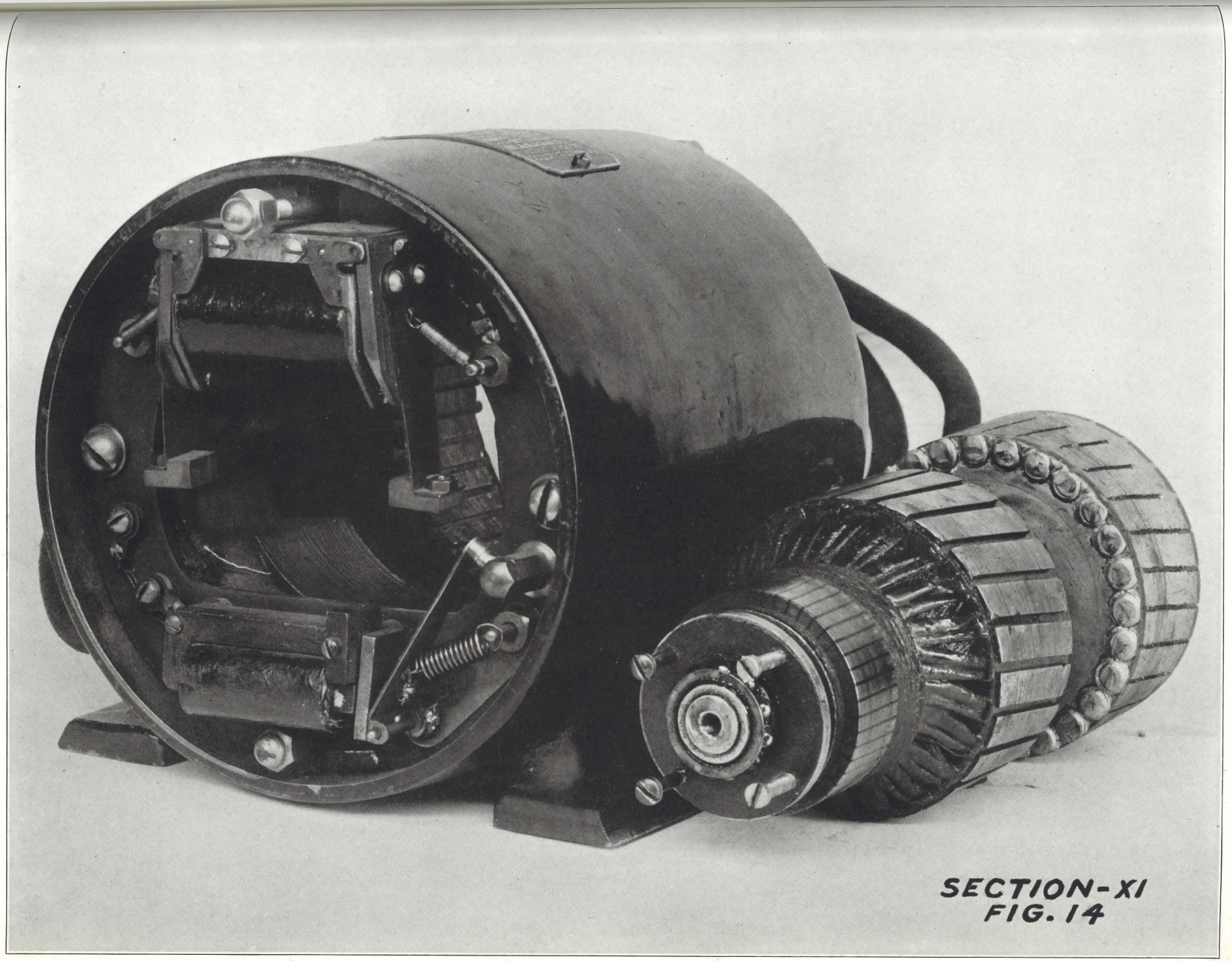


SECTION-XI
FIG. 11

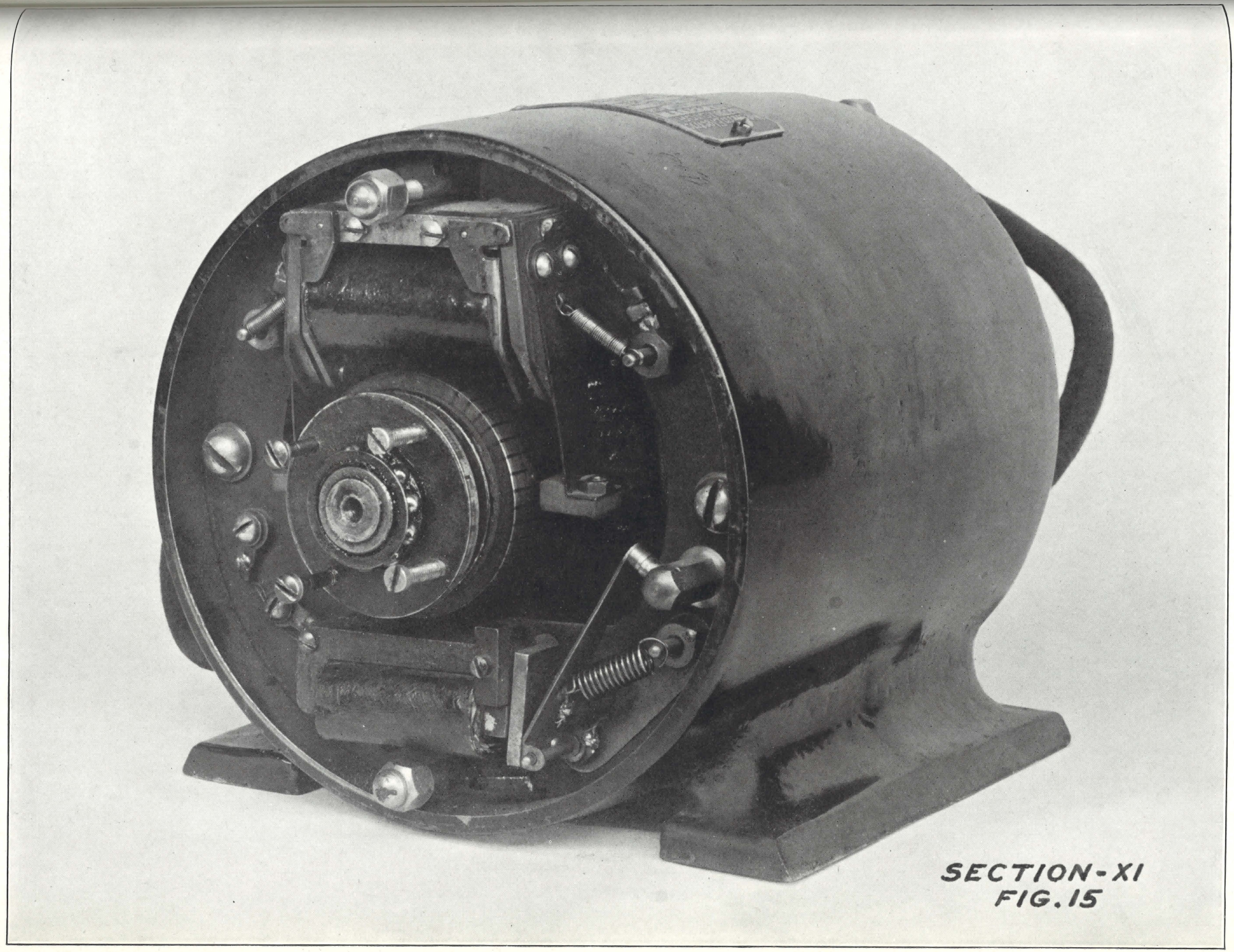
SECTION-XI
FIG. 12



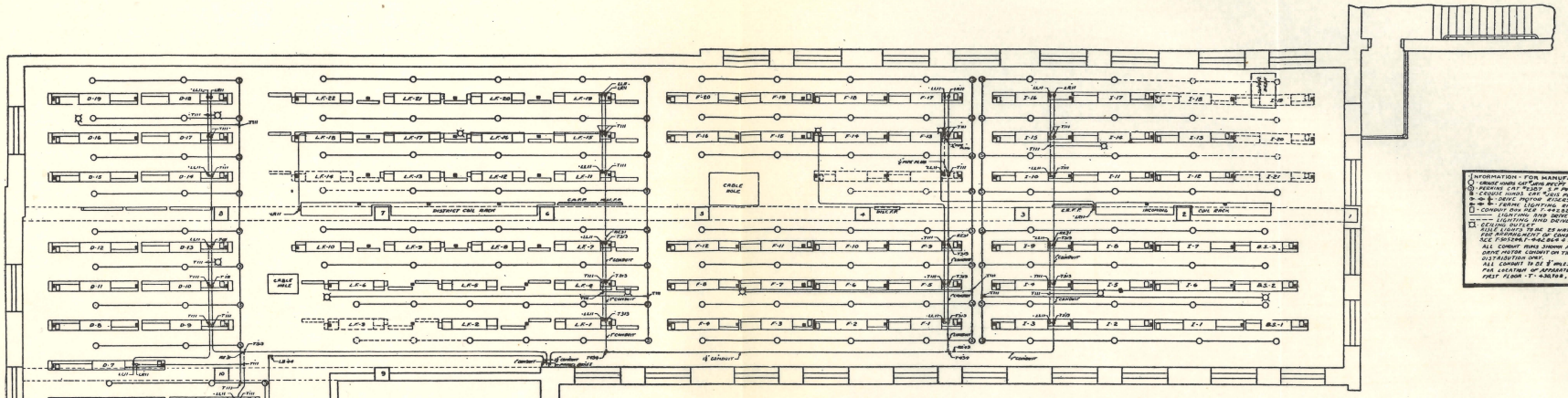
SECTION-XI
FIG. 13



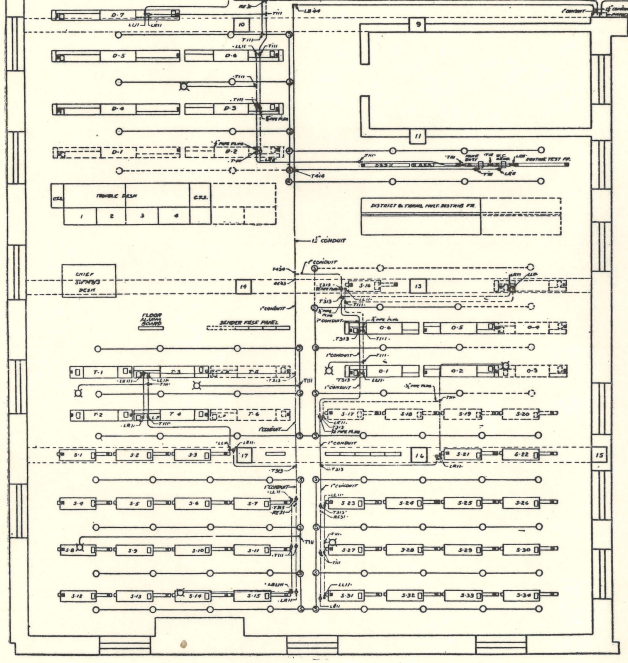
SECTION-XI
FIG. 14

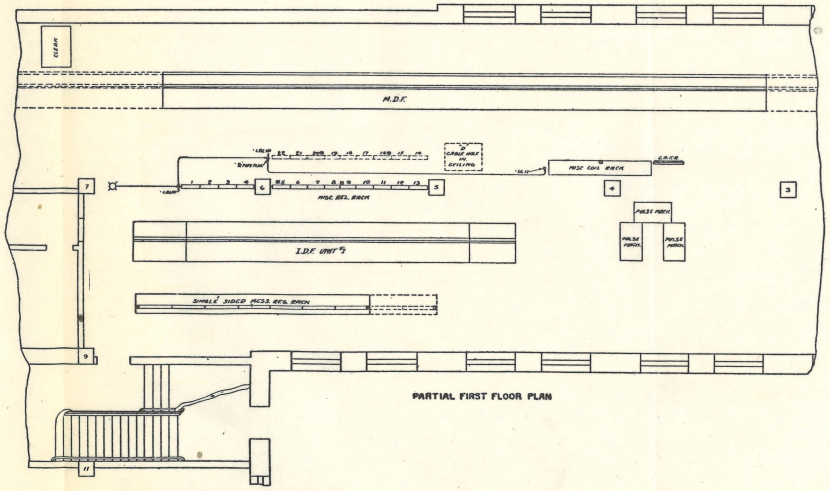


SECTION-XI
FIG. 15



SECOND FLOOR PLAN





PARTIAL FIRST FLOOR PLAN

INFORMATION - FOR MANUFACTURING PURPOSES

- ⊙ - FLOOR HOLES CAT 5016 RECEPT. AISLES ONE 61 HOLE W/ GROMMETS
- ⊙ - CEILING HOLES CAT 5016 RECEPT. W/ PAIL SWITCH (3 AMP 230V.)
- ⊙ - CEILING HOLES CAT 5016 PLUG RECEPT. (UNLABELED)
- ⊙ - DRIVE MOTOR 3/16" HOLE
- ⊙ - FLORINE LIGHTING FIXTURES
- ⊙ - CONDUIT RUN PER T-942500
- ——— LIGHTING AND DRIVE MOTOR CONDUIT (PRESENT)
- ——— LIGHTING AND DRIVE MOTOR CONDUIT (FUTURE)
- ☐ CEILING OUTLETS
- SIDE LIGHTS TO BE 55 WATT
- FOR APPROVAL OF CONDUIT AND FITTINGS ON FRAMES SEE T-901248, T-942,849 & T-942,963.
- ALL CONDUIT RUNS 3/4 MM ARE ARRANGED AT CEILING, GANG CONDUIT ON TWO DRAWING LINES A.C. & D. FUNCTION UNIT.
- ALL CONDUIT TO BE 3/4 UNLESS OTHERWISE SPECIFIED.
- FOR LOCATION OF APPARATUS SEE FLOOR PLANS, FIRST FLOOR - T-430708, SECOND FLOOR T-430707.

T-940337 ISSUE 11 APP'D

INFORMATION-NOT FOR MANUFACTURING PURPOSES:

SECTION XI
FIG 16

CONDUIT PLAN
LIGHTING & DRIVE MOTORS 1ST & 2ND FLOORS
FULL MECHANICAL POWER DRIVEN SYSTEM
THE BELL TELEPHONE COMPANY OF PA.
GERMANTOWN OFFICE PHILA, PA.

SCALE 1/4"=1'-0"

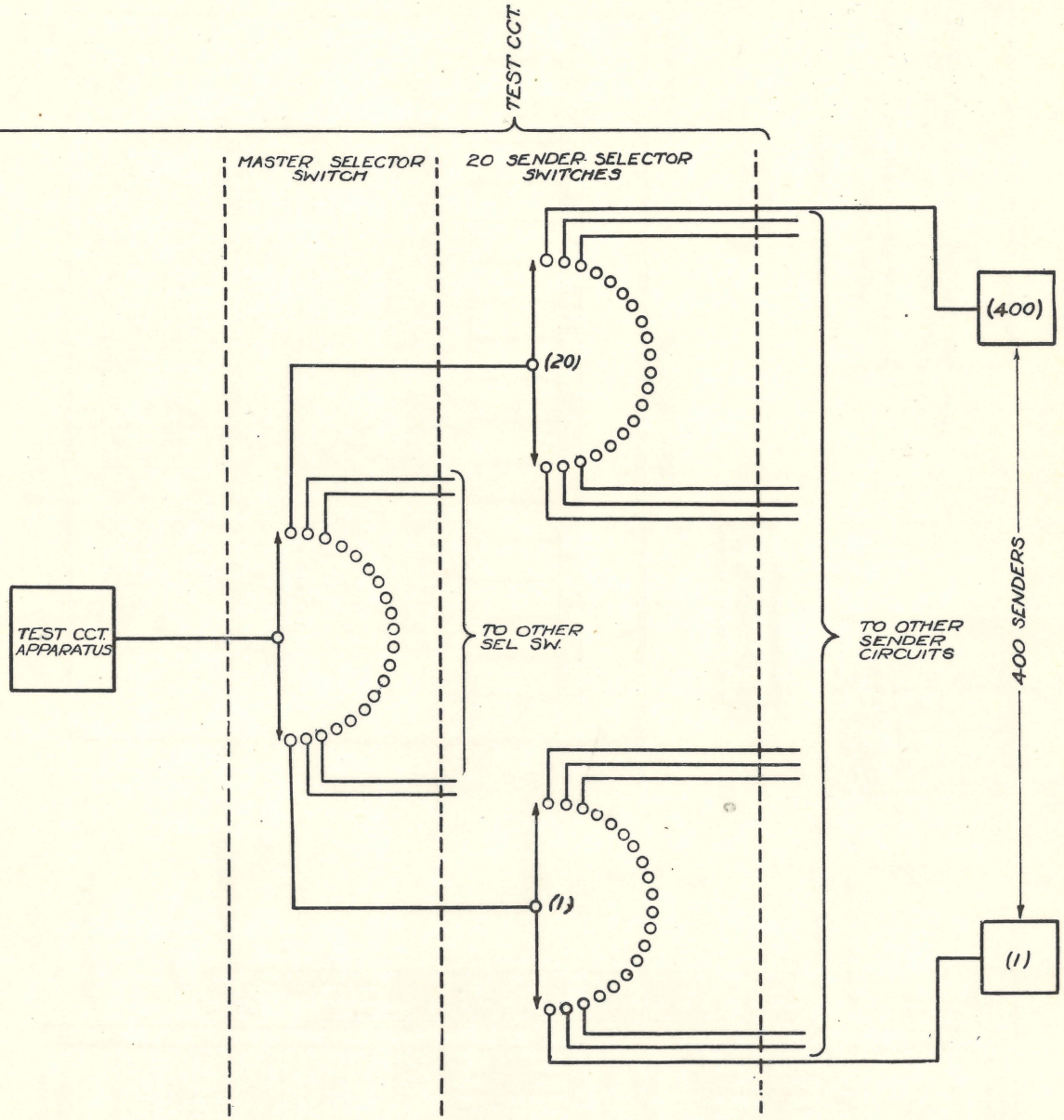
Approved [illegible] Drawn BY [illegible]
Checked BY [illegible]

WESTERN ELECTRIC COMPANY, Inc.

T-506135
U

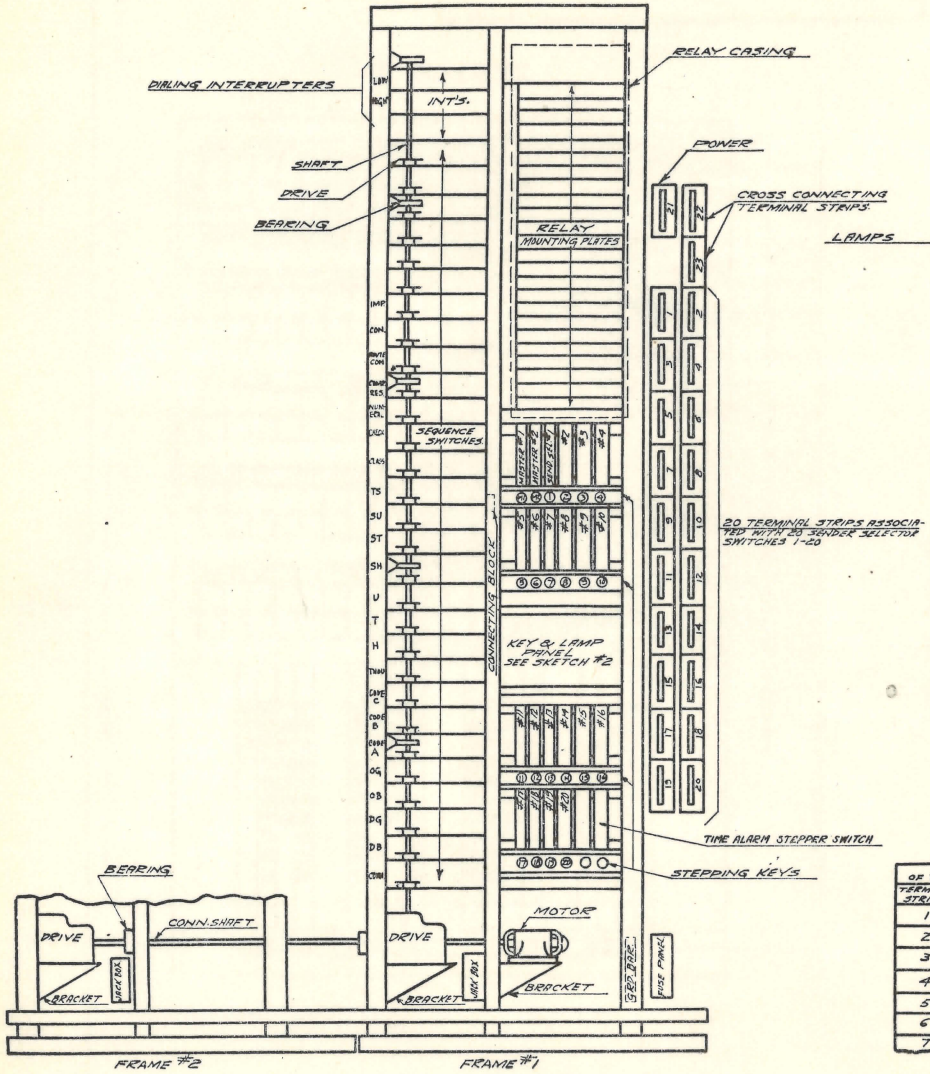
Section XII

Routine Testing Equipment

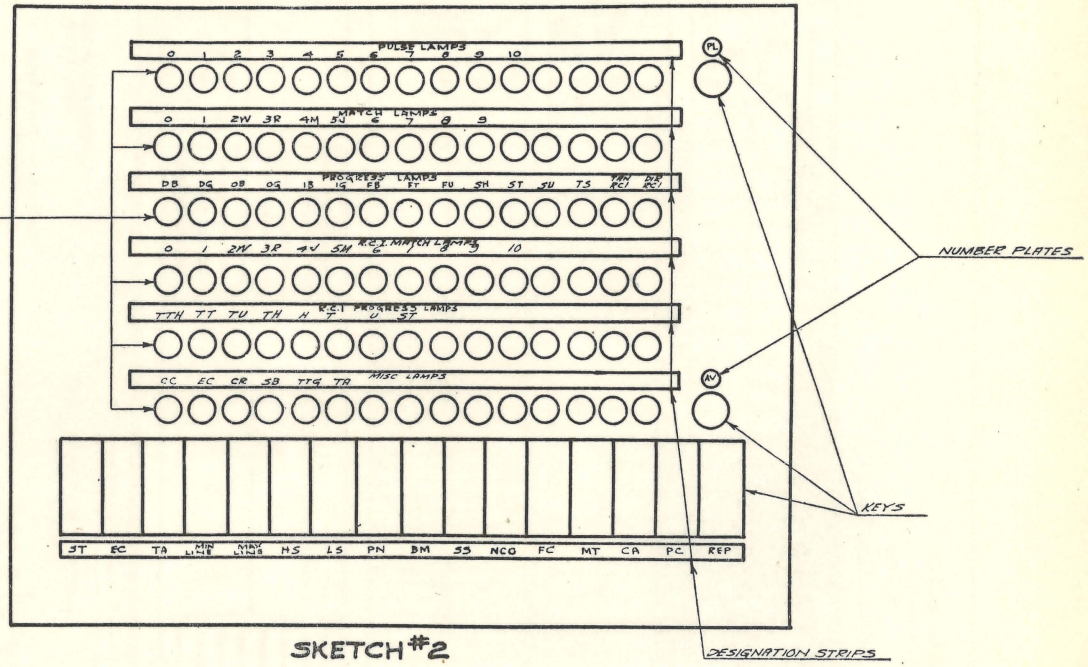


SECTION XII
FIG #1

INFORMATION DRAWING
SHOWING SCHEMATIC ARRANGEMENT
FOR SELECTING ANY ONE OF 400 SENDERS
AUTOMATIC ROUTINE TEST OF SUBSCRIBERS SENDERS
FULL MECHANICAL POWER DRIVEN SYSTEM



SKETCH #1



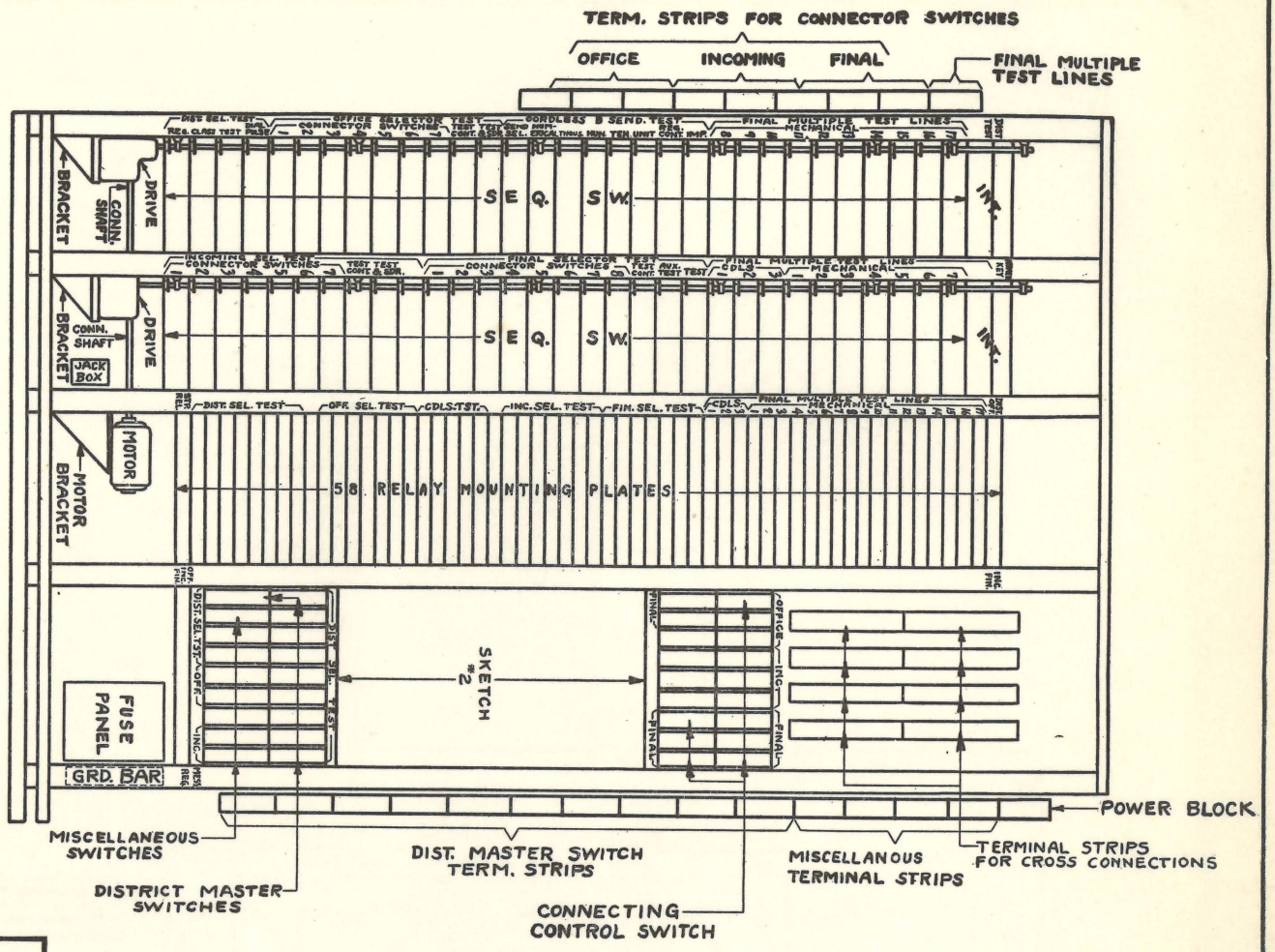
SKETCH #2

ES-249125

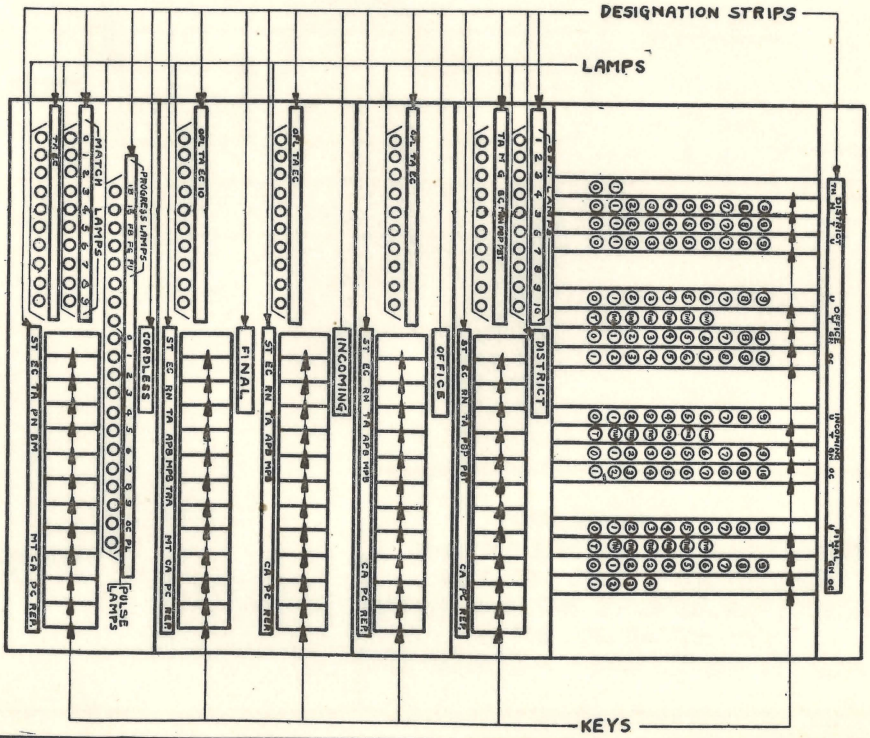
SECTION XII
FIG-2

NUMBERING OF TERMINAL STRIPS.		
TERMINAL STRIPS	SEND. SEL. NO.	SENDER FRAME
1	1	1-2-3-4
2	2	5-6-7-8
3	3	9-10-11-12
4	4	13-14-15-16
5	5	17-18-19-20
6	6	21-22-23-24
7	7	25-26-27-28

INFORMATION DRAWING
SHOWING EQUIPMENT ARRANGEMENT
OF
SUBSCRIBERS ROUTINE SENDER TEST FRAME
FULL MECHANICAL POWER DRIVEN SYSTEM.



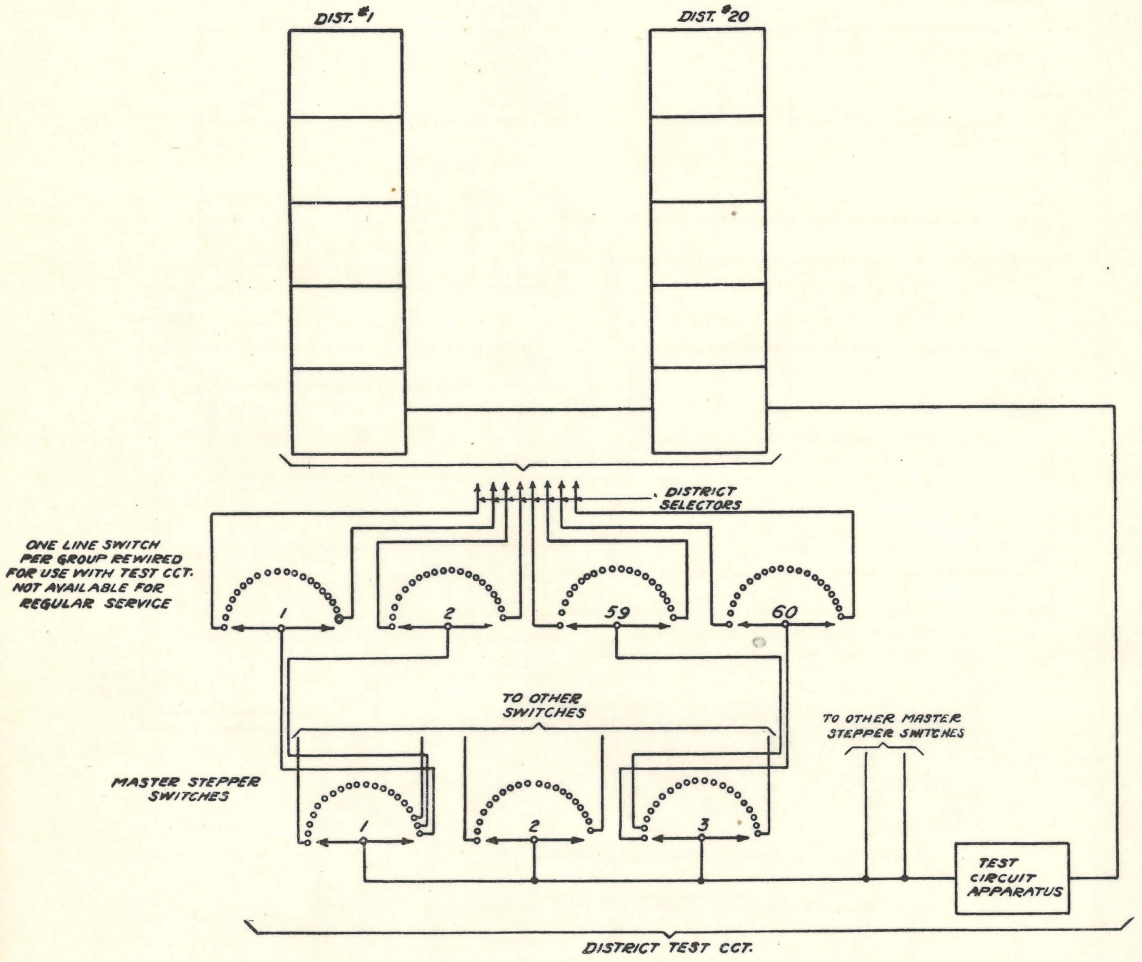
SKETCH #1



SKETCH #2

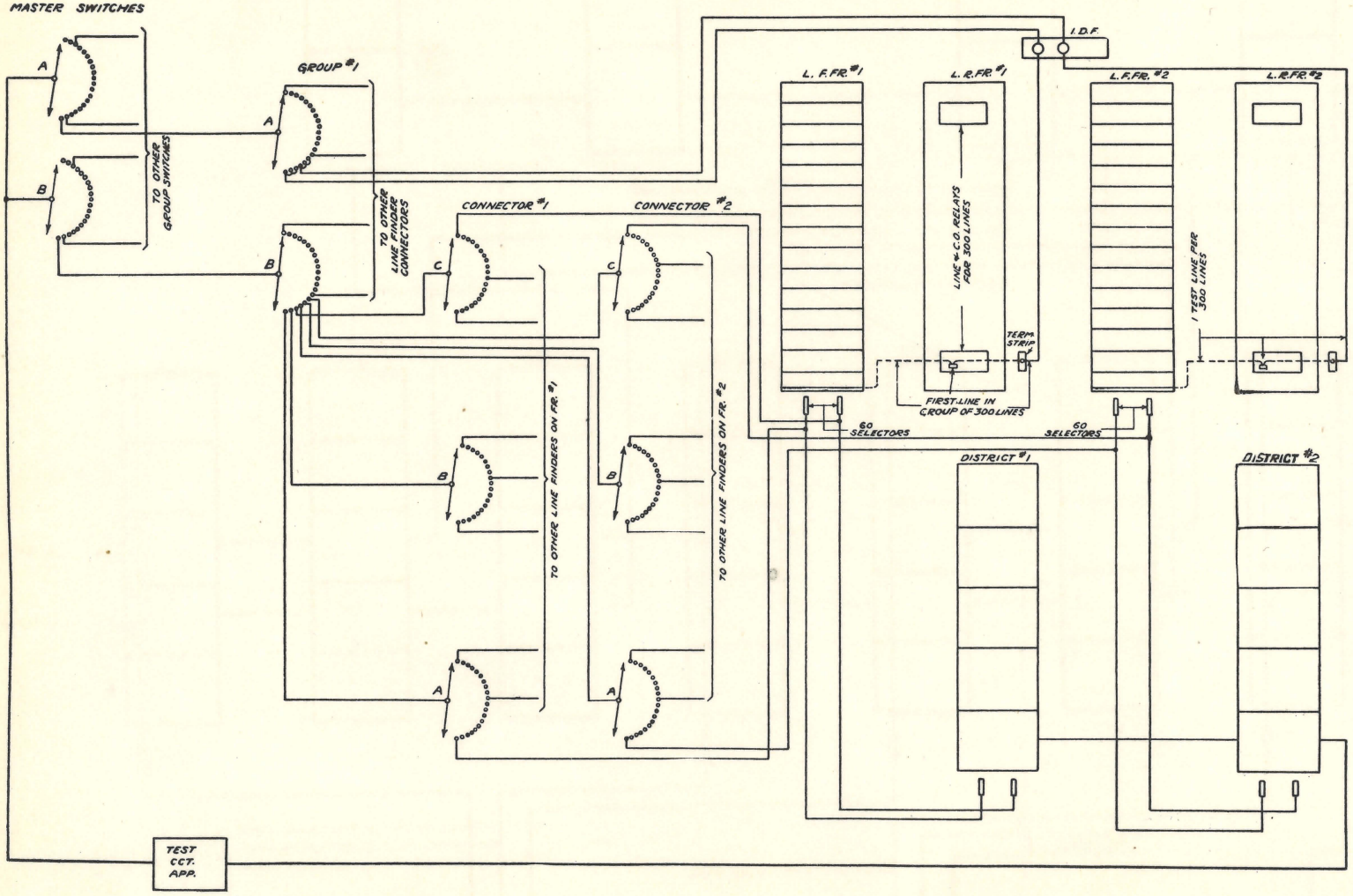
INFORMATION DRAWING
SHOWING EQUIPMENT ARRANGEMENT OF
ROUTINE SELECTOR TEST FRAME
FULL MECHANICAL POWER DRIVEN SYSTEM

SECTION XII
FIGURE 4



SECTION XII
FIG.-#4

INFORMATION DRAWING
SHOWING SCHEMATIC ARRANGEMENT FOR
SELECTING CIRCUITS FOR TESTING.
AUTOMATIC ROUTINE TEST OF DISTRICT SELECTORS
OF THE LINE SWITCH TYPE.
FULL MECHANICAL POWER DRIVEN SYSTEM.



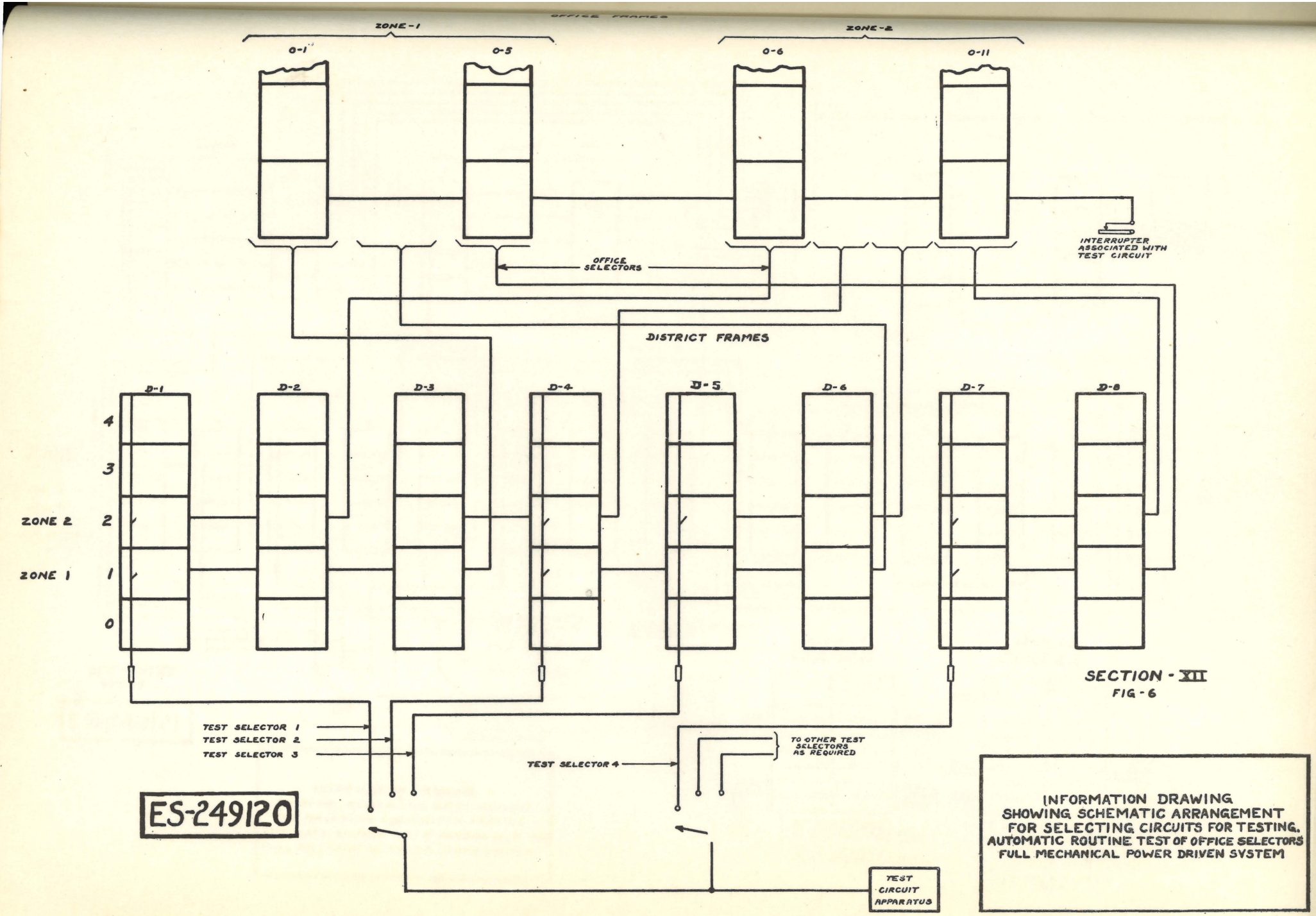
SECTION XII

FIG. #5

INFORMATION DRAWING
SHOWING SCHEMATIC ARRANGEMENT FOR
SELECTING CIRCUITS FOR TESTING.
AUTOMATIC ROUTINE TEST OF DISTRICT SELECTORS
OF THE LINE FINDER TYPE.

FULL MECHANICAL POWER DRIVEN SYSTEM.

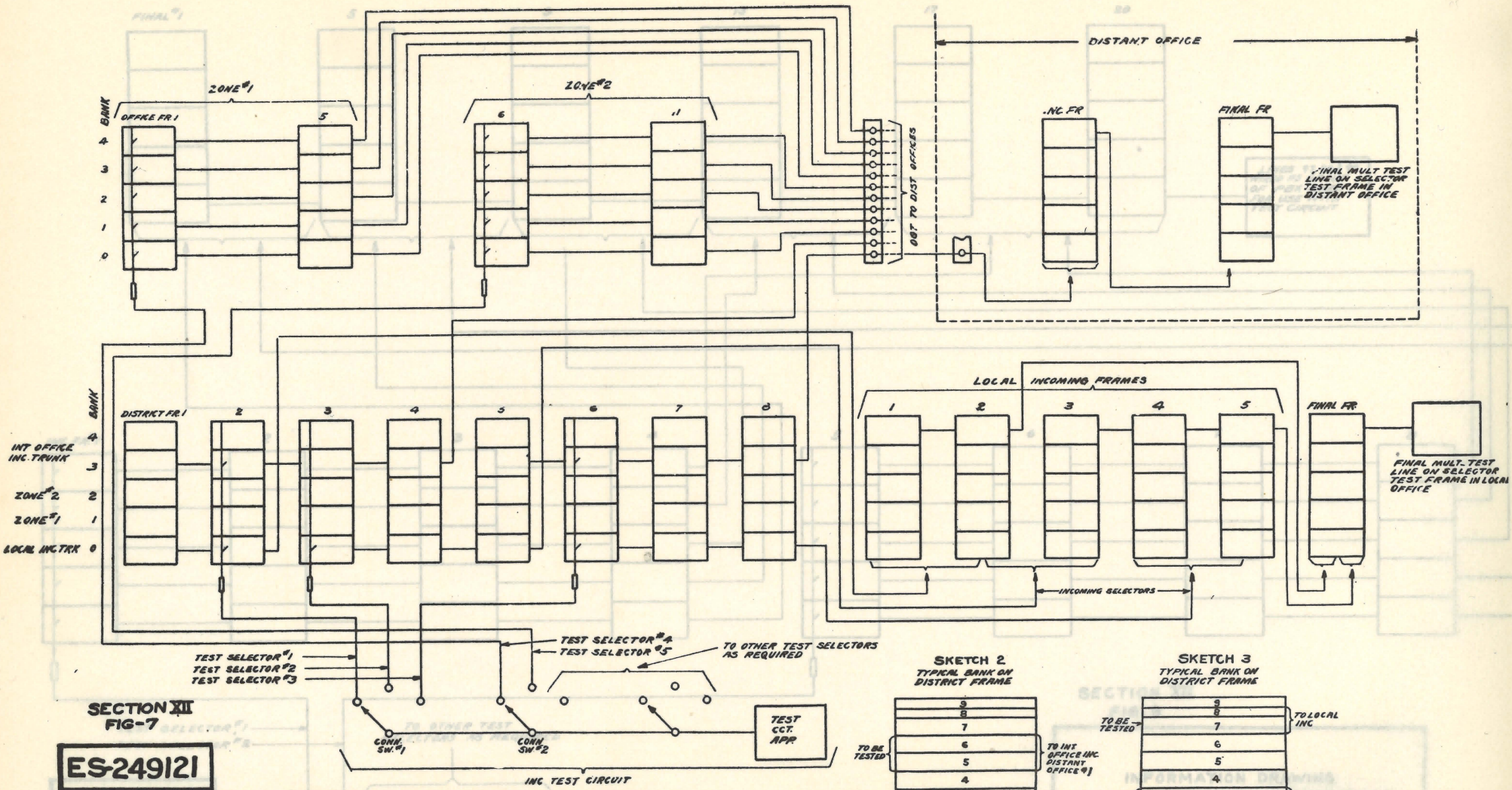
ES-249123



SECTION - XII
FIG - 6

ES-249120

INFORMATION DRAWING
SHOWING SCHEMATIC ARRANGEMENT
FOR SELECTING CIRCUITS FOR TESTING.
AUTOMATIC ROUTINE TEST OF OFFICE SELECTORS
FULL MECHANICAL POWER DRIVEN SYSTEM



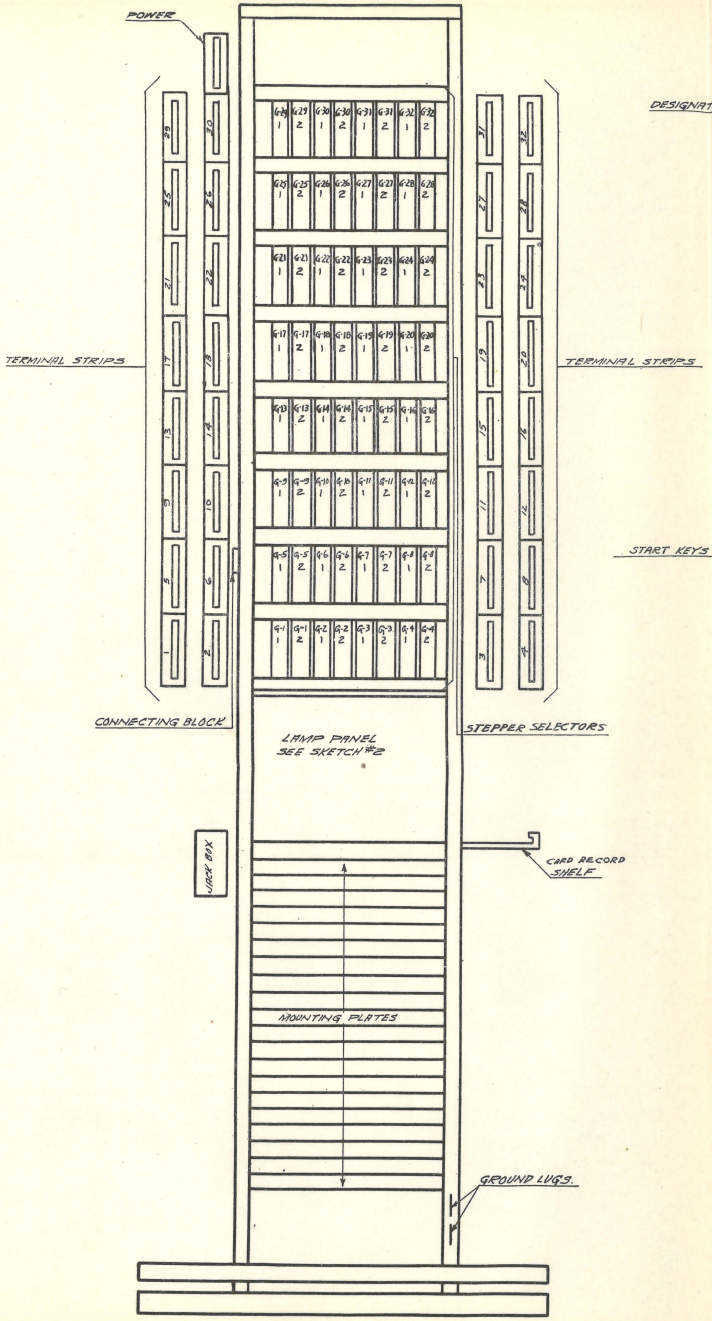
SECTION XII
FIG-7

ES-249121

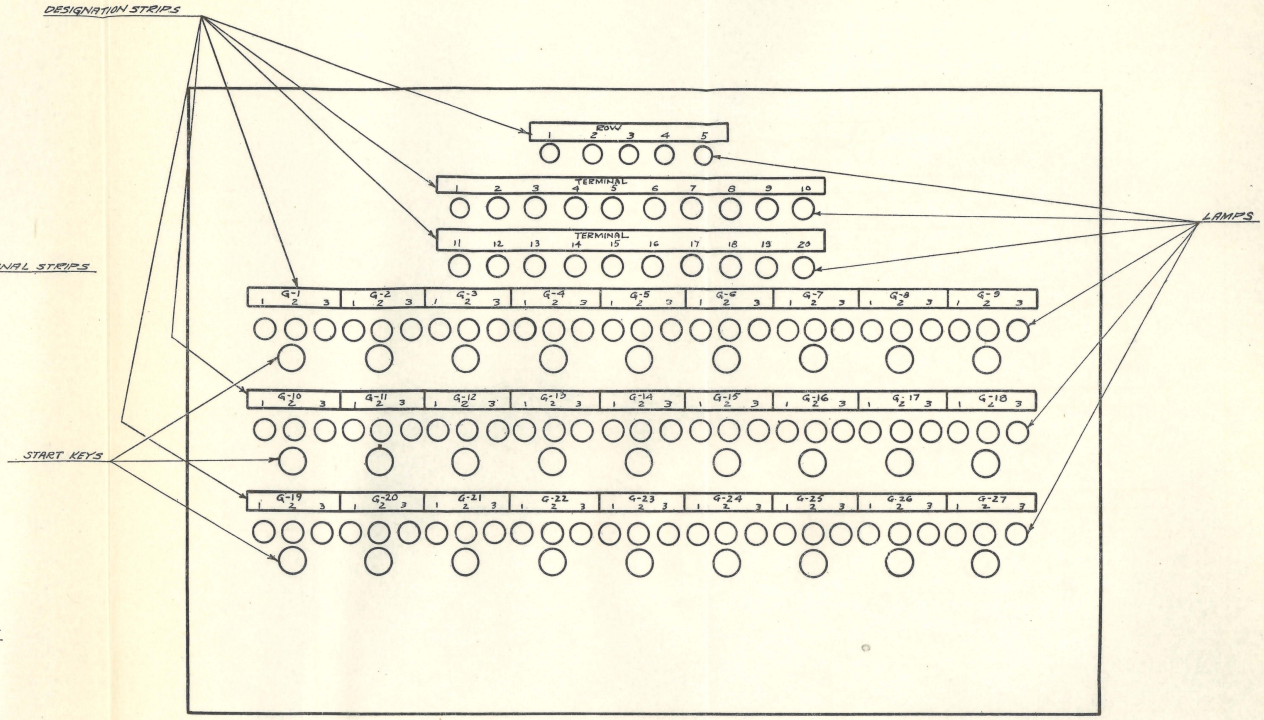
INFORMATION DRAWING
SHOWING SCHEMATIC ARRANGEMENT
FOR SELECTING CIRCUITS FOR TESTING
AUTOMATIC ROUTINE TEST OF INCOMING SELECTORS
FULL MECHANICAL POWER DRIVEN SYSTEM

SKETCH 2
TYPICAL BANK ON DISTRICT FRAME

SKETCH 3
TYPICAL BANK ON DISTRICT FRAME



SKETCH #1

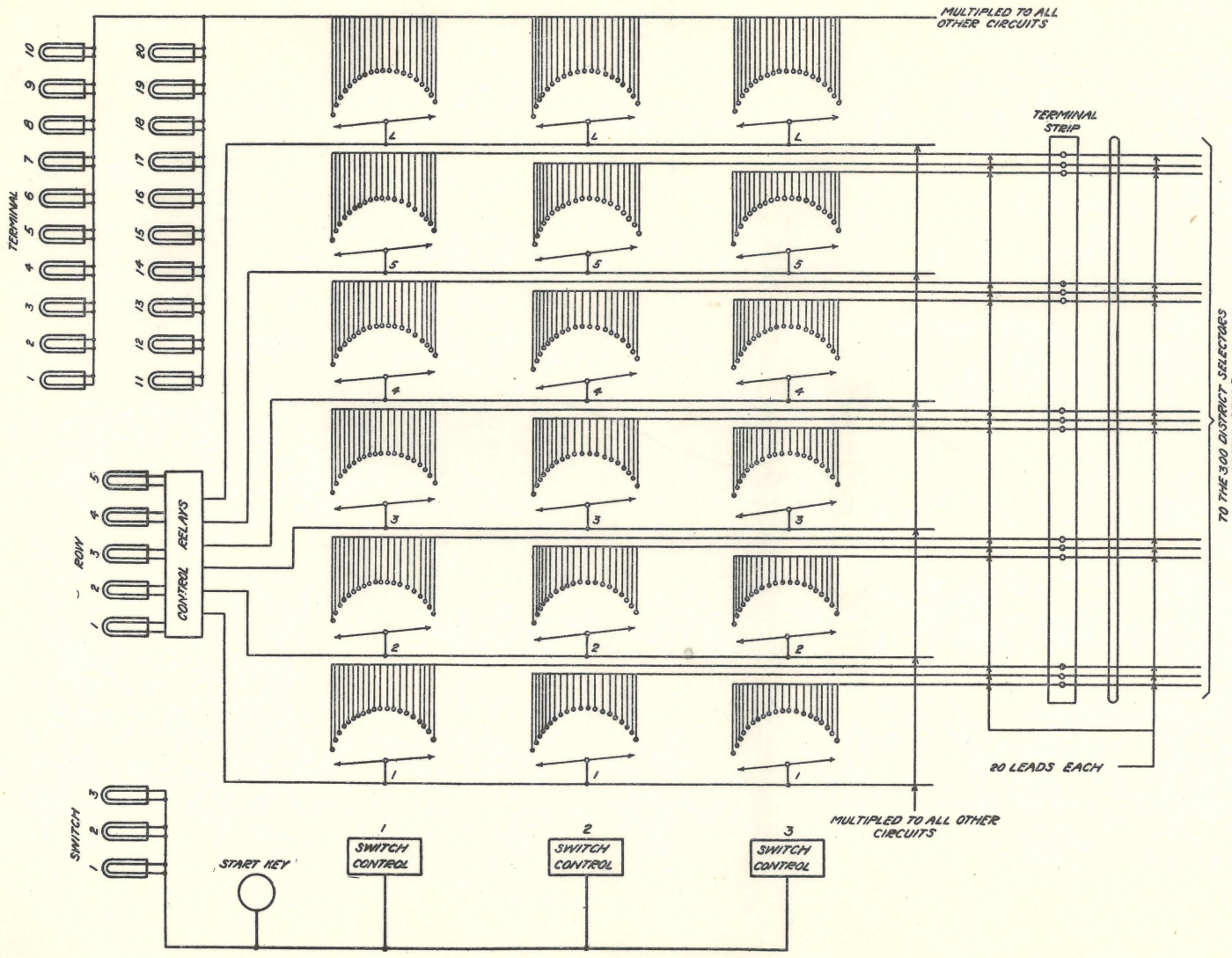


SKETCH #2

SECTION XII
FIG-9

INFORMATION DRAWING
GENERAL ARRANGEMENT OF EQUIPMENT
OF STUCK SENDER SELECTOR FRAME
AUTOMATIC ROUTINE TEST EQUIPMENT
FULL MECHANICAL POWER DRIVEN SYSTEM

ES-249126



SECTION XII
FIG. #10

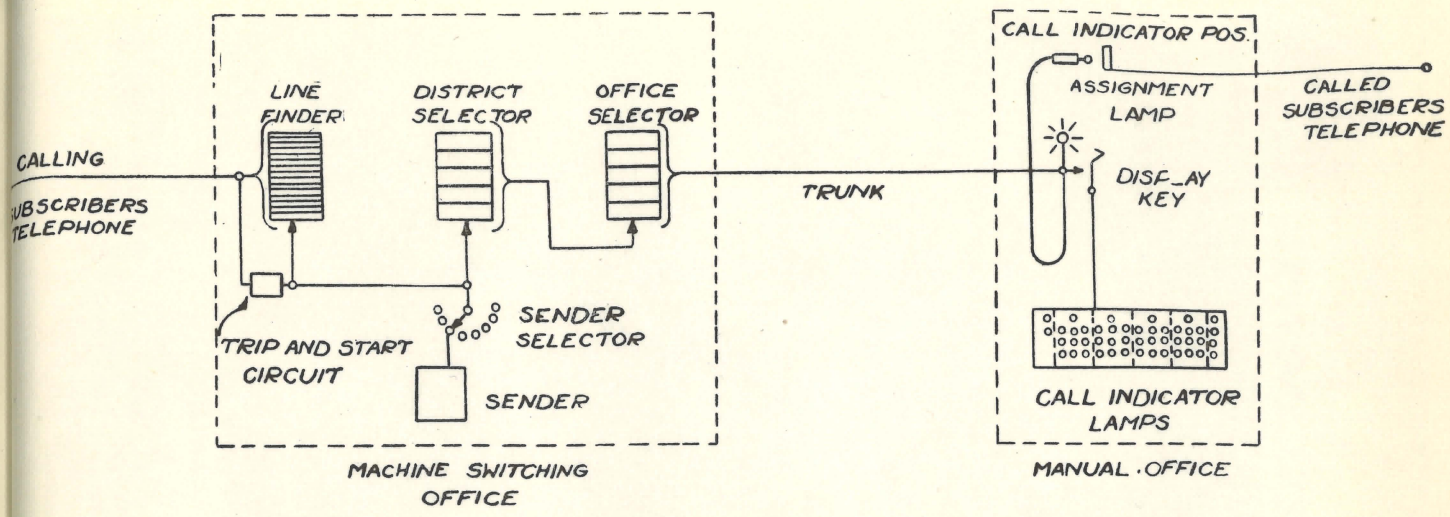
INFORMATION DRAWING
SCHEMATIC ARRANGEMENT FOR FINDING DISTRICT SELECTORS ASSOCIATED WITH STUCK SENDERS
AUTOMATIC ROUTINE TEST EQUIPMENT
FULL MECHANICAL POWER DRIVEN SYSTEM

ES-249126

Section XIII

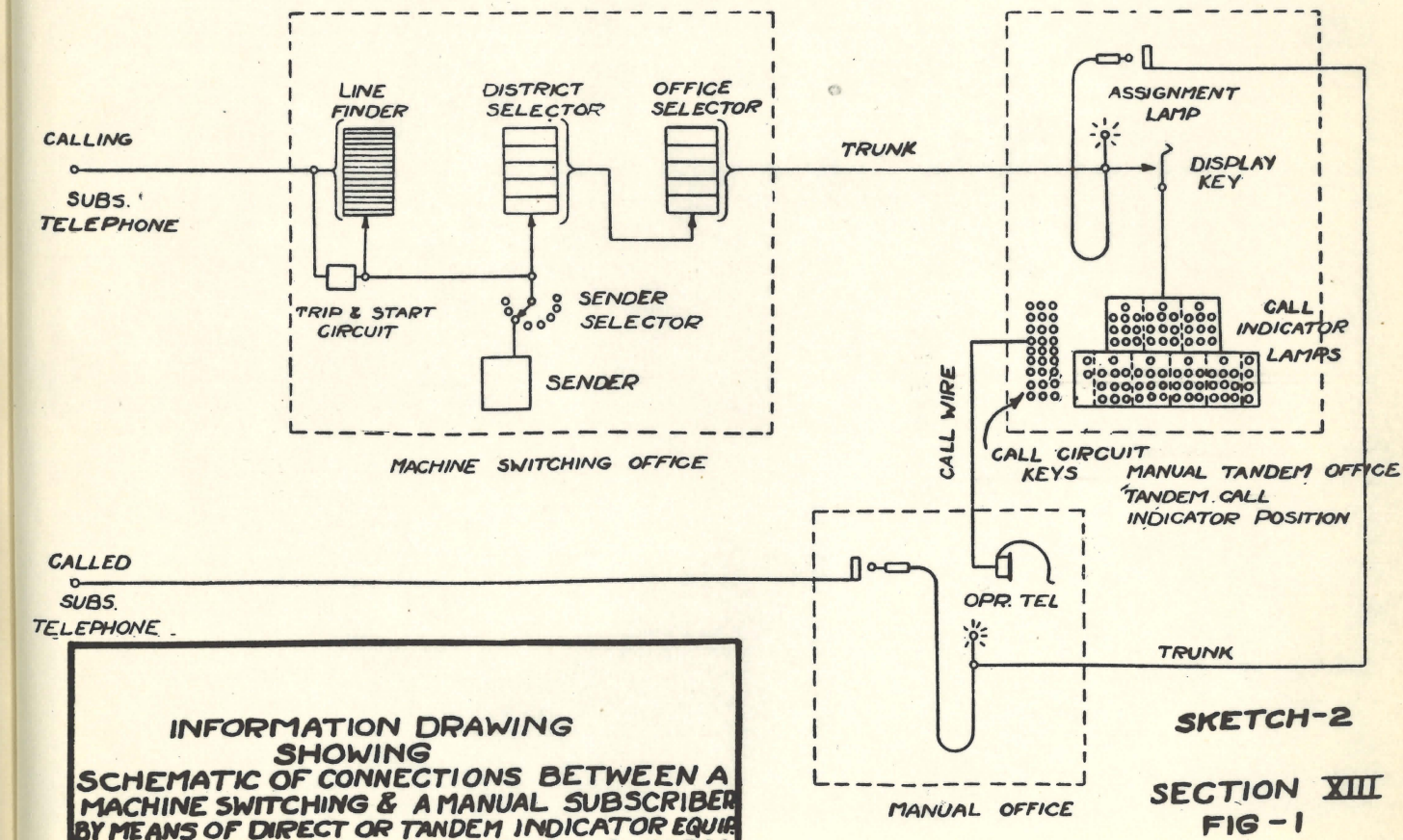
Call and Key-Indicator Equipment

CONNECTION FROM A SUBSCRIBER IN A MACHINE SWITCHING OFFICE TO A SUBSCRIBER IN A MANUAL OFFICE WITH DIRECT CALL INDICATOR EQUIPMENT



SKETCH-1

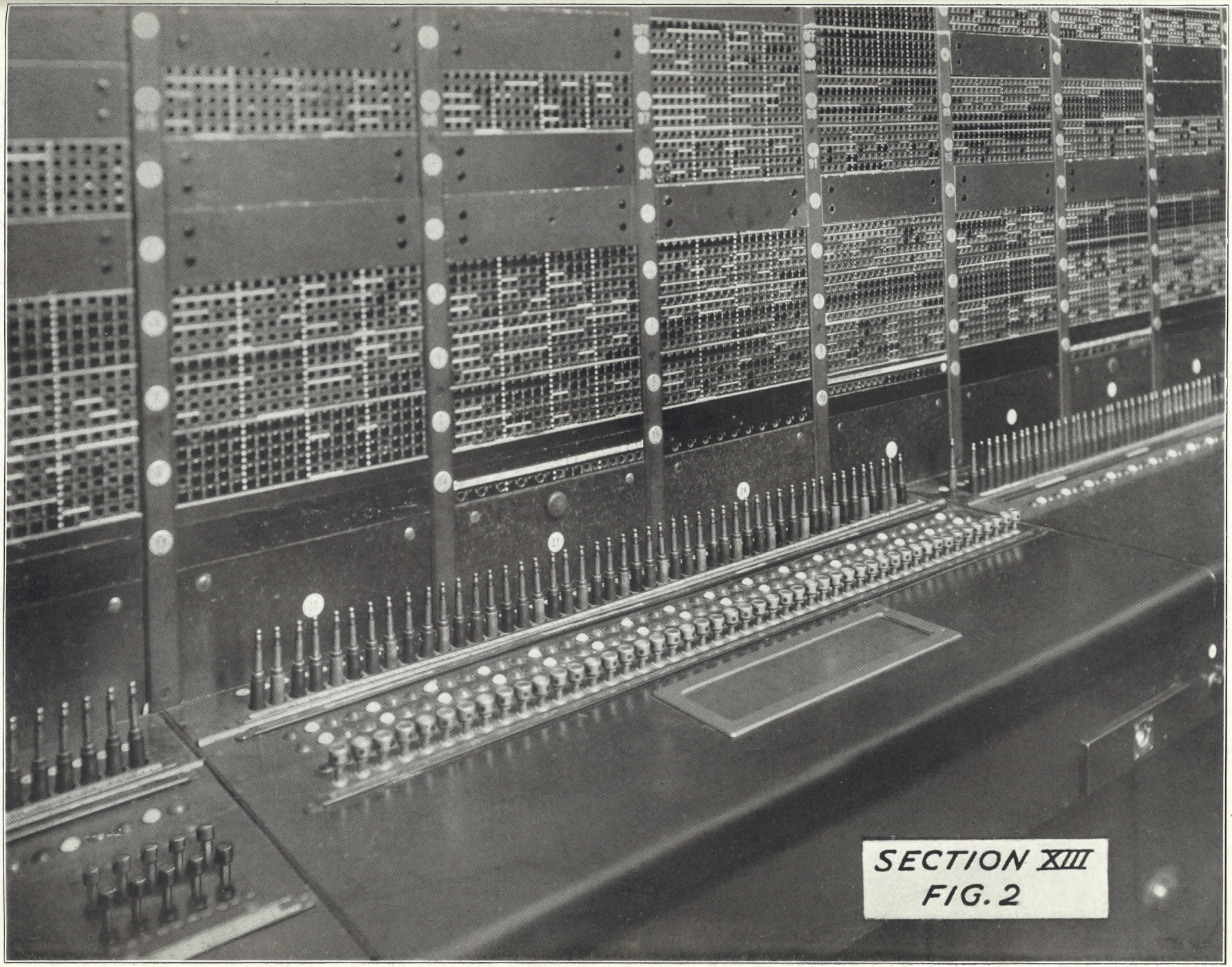
CONNECTION FROM A SUBSCRIBER IN A MACHINE SWITCHING OFFICE TO A SUBSCRIBER IN A MANUAL OFFICE WITH TANDEM CALL INDICATOR EQUIPMENT



SKETCH-2

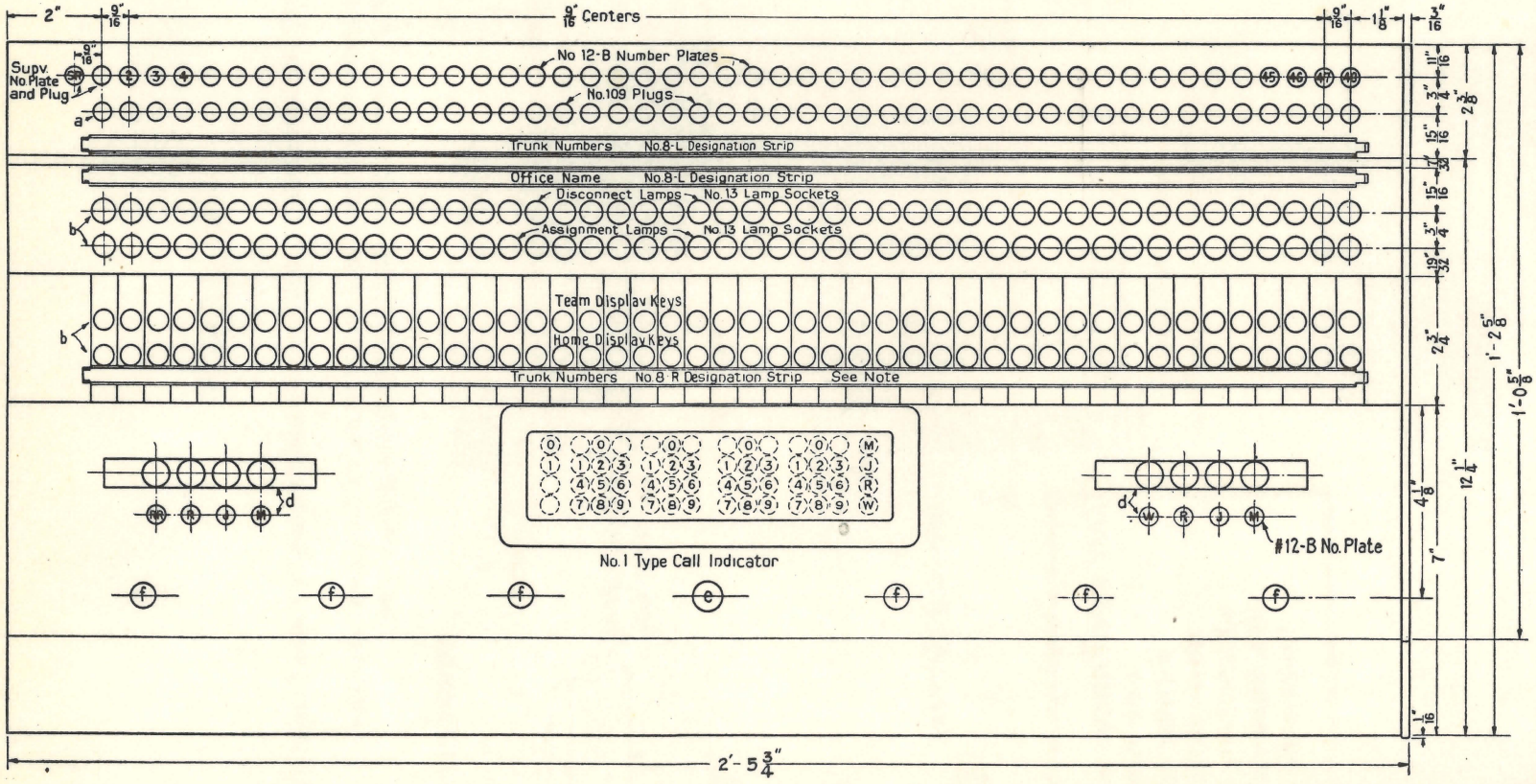
INFORMATION DRAWING
SHOWING
SCHEMATIC OF CONNECTIONS BETWEEN A MACHINE SWITCHING & A MANUAL SUBSCRIBER BY MEANS OF DIRECT OR TANDEM INDICATOR EQUIP. FULL MECHANICAL POWER DRIVEN SYSTEM

SECTION XIII
FIG-1



SECTION XIII
FIG. 2

SWITCHBOARD No. 1
TRUNK OPERATOR'S POSITION
Arranged for Call Indicator Operation

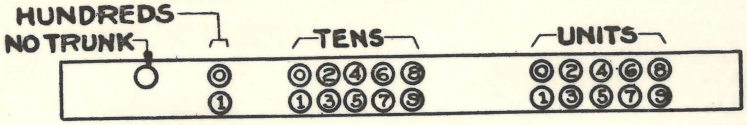


a - Color of cords: Red, white, green, red, white, etc. color of plug shells: Red, gray, black, red, gray, etc.
b - Color same as associated cords.
c - Supervisors plug and No. plate - drill and equip only when specified.
d - Master ringing keys and No. plate - drill and equip as specified.
e - Peg count register key - drill and equip as specified.
f - Message register socket - drill and equip as specified.

— NOTES —

The longitudinal dimensions for the location of equipment and overall length for keyshelves for sections other than the 7-8½" panel shall be as shown on standard drawings for call circuit positions having trunks on 9/16" centers.
For new lines of boards the width of keyshelf shall be 1'-2 5/8". For positions to line up with existing sections where the width of keyshelf is 1'-0 5/8" the location of equipment shall be as shown. The 7" dimension shall be reduced to 5". Where the keyshelf is slightly less than 1'-0 5/8", the 4 1/8" dimension shall be reduced accordingly.
For 38 and 40 trunks on 9/16" centers use #8-N and #8-F designation strips respectively in place of the #8-R strips.

SECTION XIII
FIG. # 3

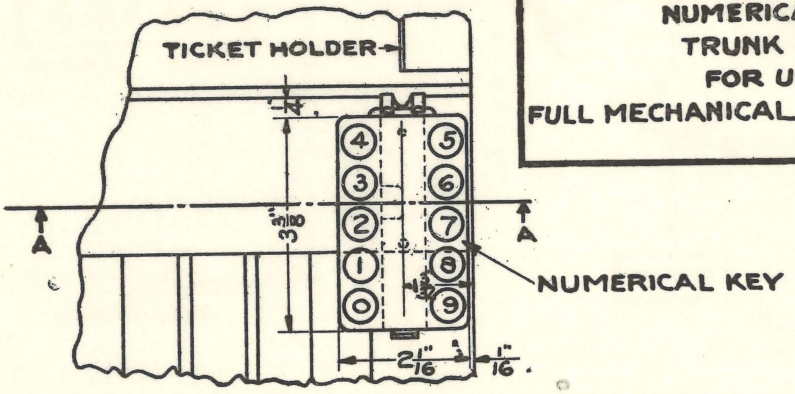


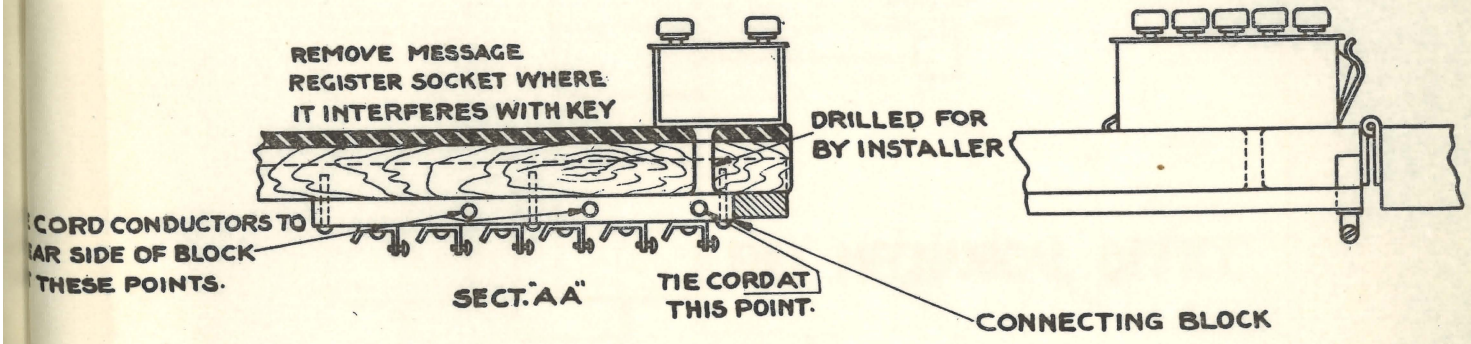
TRUNK INDICATOR FOR MORE THAN 100 AND FEWER THAN 201 O.G.T.

SKETCH 1

INFORMATION DRAWING
KEY INDICATOR EQUIPMENT
METHOD OF MOUNTING
NUMERICAL KEY AND
TRUNK INDICATOR
FOR USE WITH
FULL MECHANICAL POWER DRIVEN SYSTEM

SECTION XIII
FIG# 4



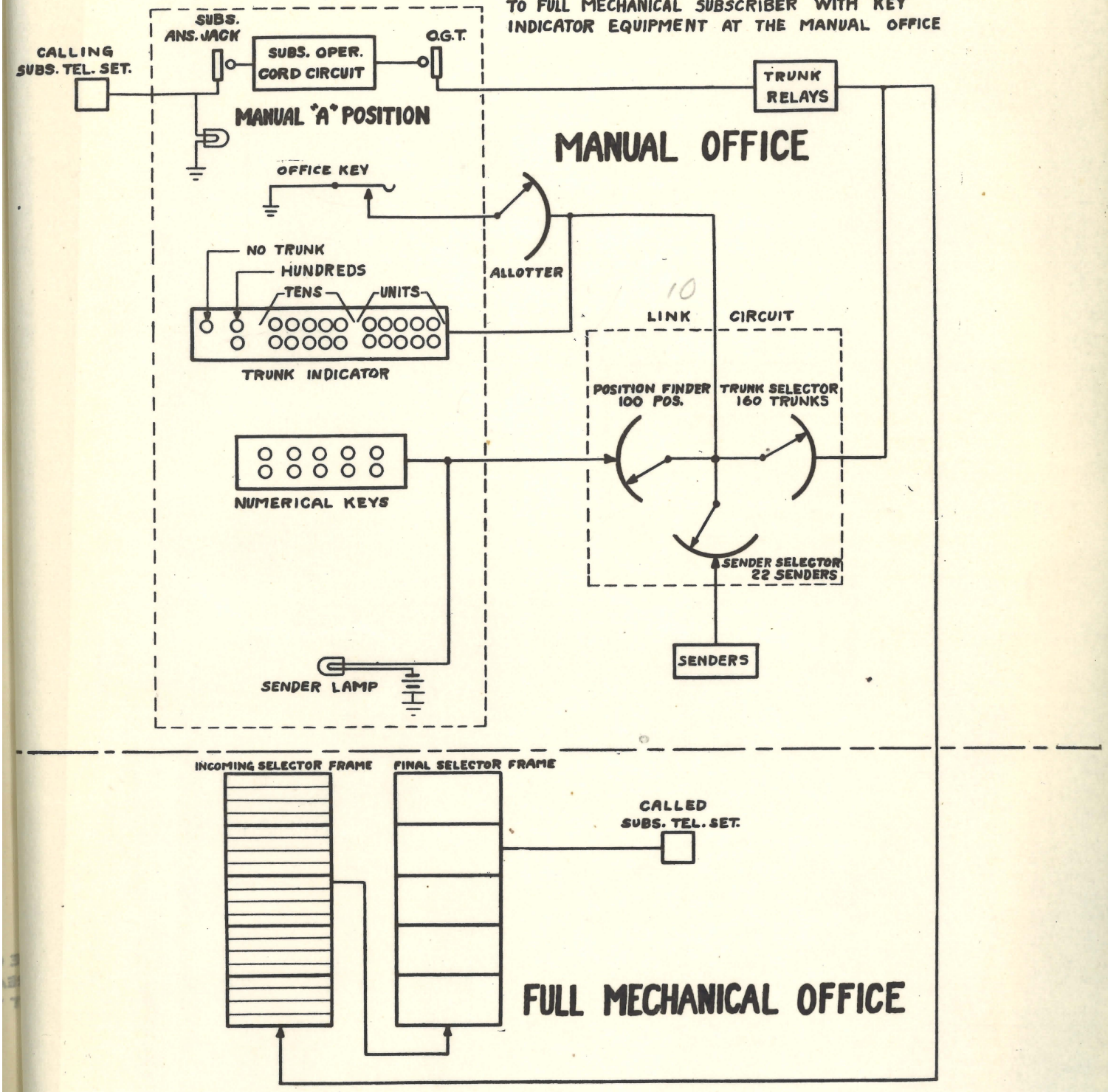


SHIFT CONNECTING BLOCK AS REQUIRED TO MAKE
MOUNTING SCREWS MISS HINGE SCREWS OF OLD SHELVES.

MOUNTING OF NUMERICAL KEY AND ASSOCIATED CONNECTING BLOCK ON KEYSHELF.

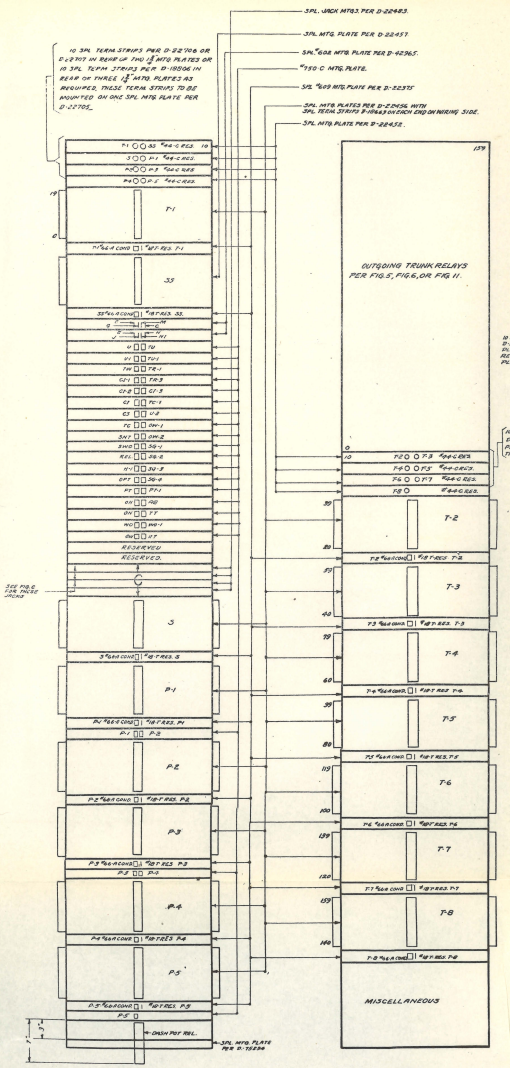
SKETCH 2

SCHEMATIC OF CONNECTION FROM MANUAL SUBSCRIBER TO FULL MECHANICAL SUBSCRIBER WITH KEY INDICATOR EQUIPMENT AT THE MANUAL OFFICE



SECTION XIII
FIG. 5

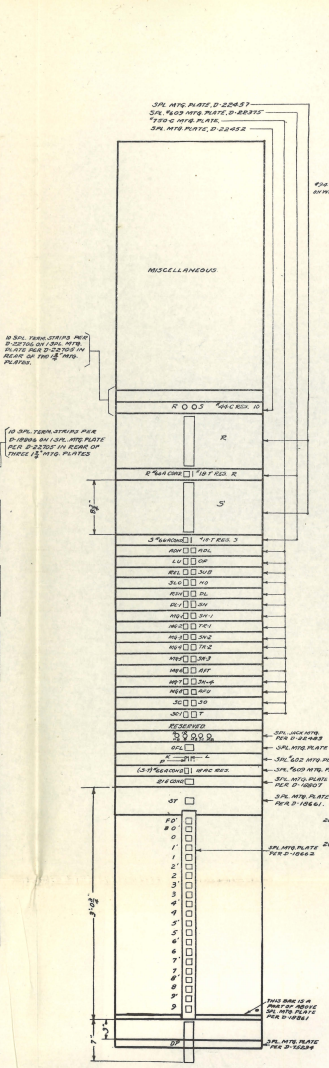
INFORMATION DRAWING
SCHEMATIC OF CONNECTION FROM MANUAL SUBSCRIBER TO FULL MECHANICAL SUBSCRIBER WITH KEY INDICATOR EQUIPMENT AT THE MANUAL OFFICE
FULL MECHANICAL POWER DRIVEN SYSTEM



"FIG-A"
SEE NOTE #6

"FIG-1"
LINKS
EQUIPMENT FOR 10 LINKS
SEE NOTE #6

"FIG.B"
LINK EXTENSION
SHOWING LINK SWITCHES IN ANOTHER BAY



"FIG-2
SENDERS
ARRANGEMENT OF APPARATUS FOR 10 SENDERS
SEE NOTE #6

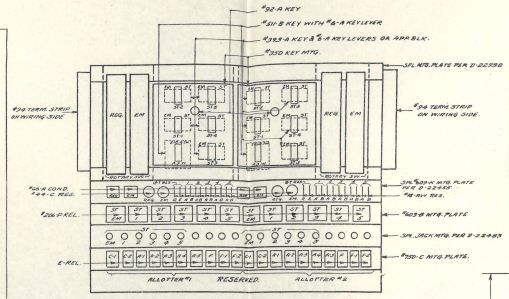
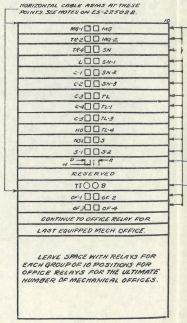
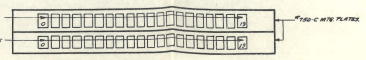


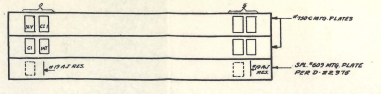
FIG.-3
ALLOTTERS
EQUIPMENT FOR 2 ALLOTTERS.



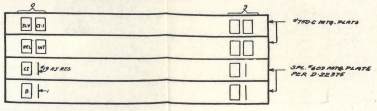
"FIG.4"
POSITION EQUIPMENT
RELAYS FOR 10 OPERATORS' POSITIONS
THIS EQUIPMENT NOT TO BE PLACED ON FRAME CONTAINING SELECTORS.



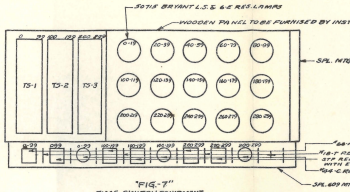
"FIG-5"
OUTGOING TRUNK
EQUIPMENT FOR 20 OUTGOING TRUNKS FROM RELAY OFFICES



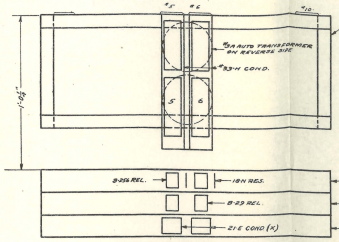
"FIG-6"
OUTGOING TRUNKS TOLL
EQUIPMENT FOR 10 OUTGOING THREE WIRE TRUNKS FROM TOLL OFFICE



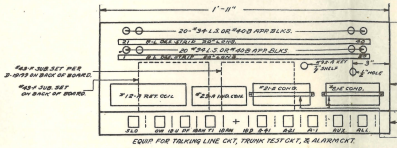
"FIG-11"
OUTGOING TRUNKS TOLL
EQUIPMENT FOR 10 OUTGOING TWO WIRE TRUNKS FROM TOLL OFFICE



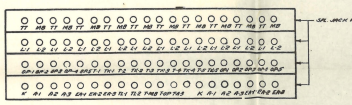
"FIG-7"
TIME SWITCH EQUIPMENT.



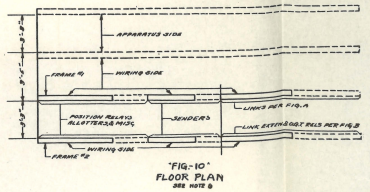
"FIG-8"
LONG LINES SUPERVISORY EQUIP.
FOR 16 CIRCUITS, CCITO 3 BD 2-WOHM.
THIS EQUIPMENT NOT TO BE PLACED ON FRAME CONTAINING SELECTORS.



"FIG-9"
EQUIP FOR TRUNK LINE CKT, TRUNK TEST CK T, & ALARM CKT.



"FIG-C"



"FIG-10"
FLOOR PLAN
SEE NOTE 8

1. FOR FRAMEWORK, SEE ES-225020
2. FOR WIRING, SEE ES-225022.
3. ALL MTG PLATES SHALL BE SUCH THAT THEY WILL MOUNT ON DRILLINGS ARRANGED FOR STANDARD 19 & 23 "MTG PLATES.
4. ALL MTG PLATES ARE 7/8" EXCEPT AS SHOWN.
5. PUT A1 NICK ON THE LINK PER FIG 1 ON ONE FRAME AS THE CEILING HEIGHT AND ULTIMATE NUMBER OF POSITION FINDERS PERMIT. ALL OF IT IF POSSIBLE. IF ONE FRAME WILL NOT ACCOMMODATE AN ENTIRE LINK, DIVIDE IT AS INDICATED BY FIGS. "A" AND "B". PUT A1 NICK ON LINK PER FIG 1 ON EACH FRAME. ANY OF THE SELECTORS MAY BE USED FOR SELECTORS. LEAVE SPACE ON THE LOWER PART OF FRAMES PER FIGS "A" AND "B" FOR ULTIMATE POSITION FINDERS AND TRUNK SELECTORS RESPECTIVELY. SEE NOTE 6.
6. PLACE THE 24" RELAY IN FIGS 1A AND 2 AT THE BOTTOM OF THE 1ST, 2ND, 3RD, 4TH, 5TH, 6TH, AND 7TH GROUPS OF TWENTY. THE 7TH AND 3RD DRILLINGS ONLY OF THE 3RD MTG PLATE POSITION FROM THE BOTTOM FOR MOUNTING THESE RELAYS. WHEN RELAYS HAVING SHUTTER BARS ENABLE THE SHUTTER BARS TO BE PLACED IN FRONT OF THE ROTARY SWITCHES AS IN THE CASE OF FIG 8, THE RELAYS SHALL BE PLACED ABOVE THE SWITCHES, SO THAT THE MULTIPLE TERM. STRIPS OF THE SWITCHES WILL NOT INTERFERE WITH CABLES AND TERMINATIONS.
8. IN THE SMALL FLOOR PLAN LAYOUTS SHALL BE AS PER FIG 10, SPACE BEING RESERVED FOR THE ULTIMATE OF EACH PART OF THE EQUIPMENT. IN THE DOUBLE ROW, APPARATUS SHALL FACE APPARATUS ON ACCOUNT OF THE LINK EXTENSION PER FIG 1 B, WHERE THE ENTIRE LINK CAN BE PUT ON ONE FRAME, THE LAYOUT MAY BE A SINGLE ROW GROWING PREFERABLY FROM LEFT TO RIGHT, NUMBERING FRAMES 1 UP IN ALL CASES.

ES-225021

SECTION XIII
PLATE #6.

KEY INDICATOR FRAME EQUIPMENT,
KEY INDICATOR SYSTEM

T-500147

INFORMATION - FOR MANUFACTURING PURPOSES

NOTE:-
1. NUMBERING OF EQUIPMENT SHALL BE DONE IN ACCORDANCE WITH INFORMATION GIVEN ON T-428252. NUMBERING OF APPARATUS NOT COVERED ON T-428252 SHALL BE NUMBERED IN ACCORDANCE WITH STANDARD PRACTICE.
2. FIG. "A" USED WHEN UNIT IS EQUIPPED TO TEST 20 OR LESS SENDERS.
3. FIG. "B" USED WHEN UNIT IS EQUIPPED TO TEST 21 TO 40 SENDERS.
4. FIG. "C" USED WHEN UNIT IS EQUIPPED TO TEST 41 TO 60 SENDERS.

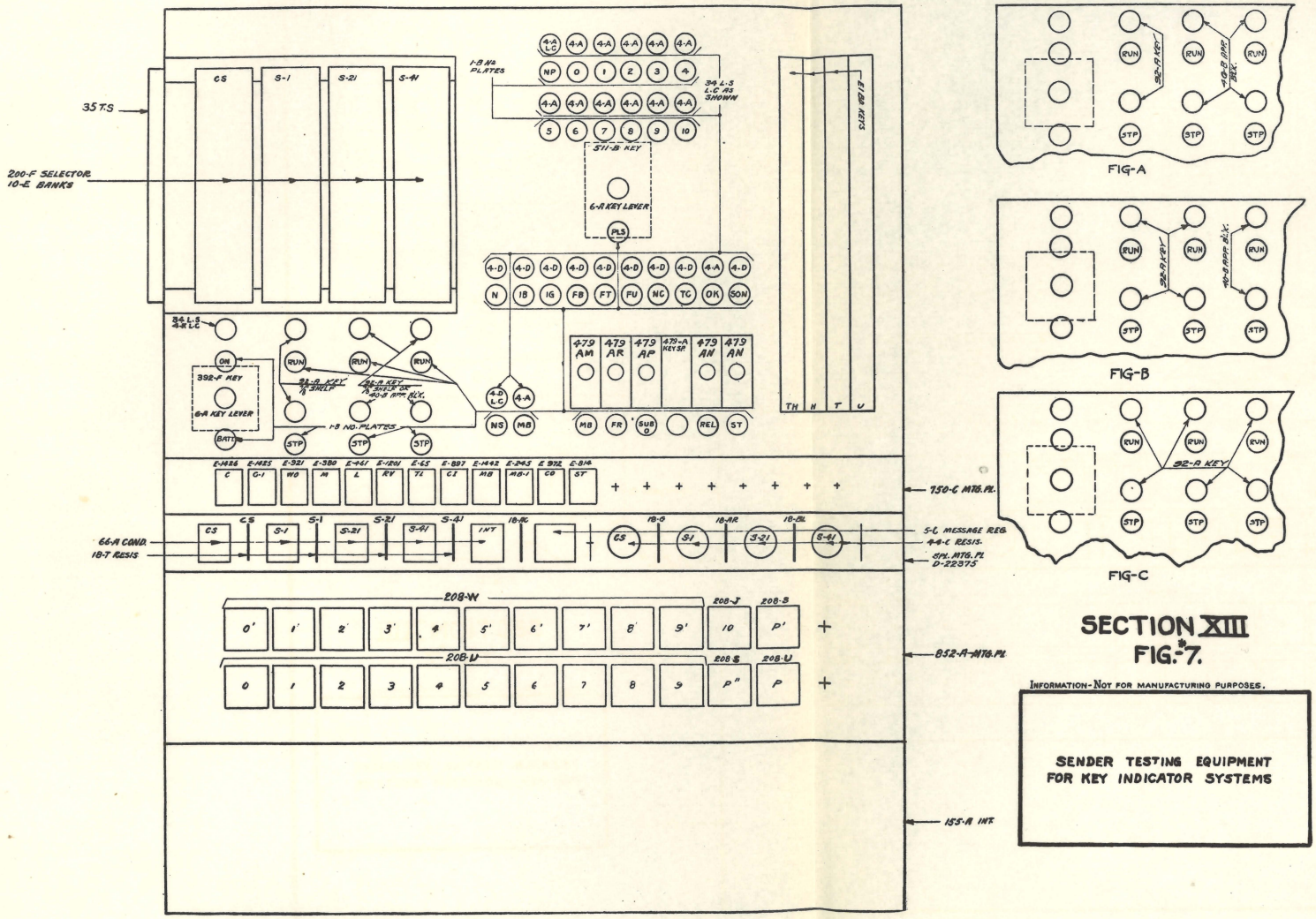


FIG-A

FIG-B

FIG-C

SECTION XIII
FIG. 7.

INFORMATION - NOT FOR MANUFACTURING PURPOSES.

SENDER TESTING EQUIPMENT FOR KEY INDICATOR SYSTEMS

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